MARCH 21, 1959
VOL. 156—NO. 12

Telephony

THE JOURNAL OF THE
TELEPHONE INDUSTRY
SINCE 1901

Published every week on Saturday by TELEPHONY PUBLISHING CORP., 300 S. Dearborn St., Chicago 5, Ill. Subscription $4.00 per year. Entered as second class matter at the Post Office at Chicago, Ill., under the act of Mar. 3, 1879.

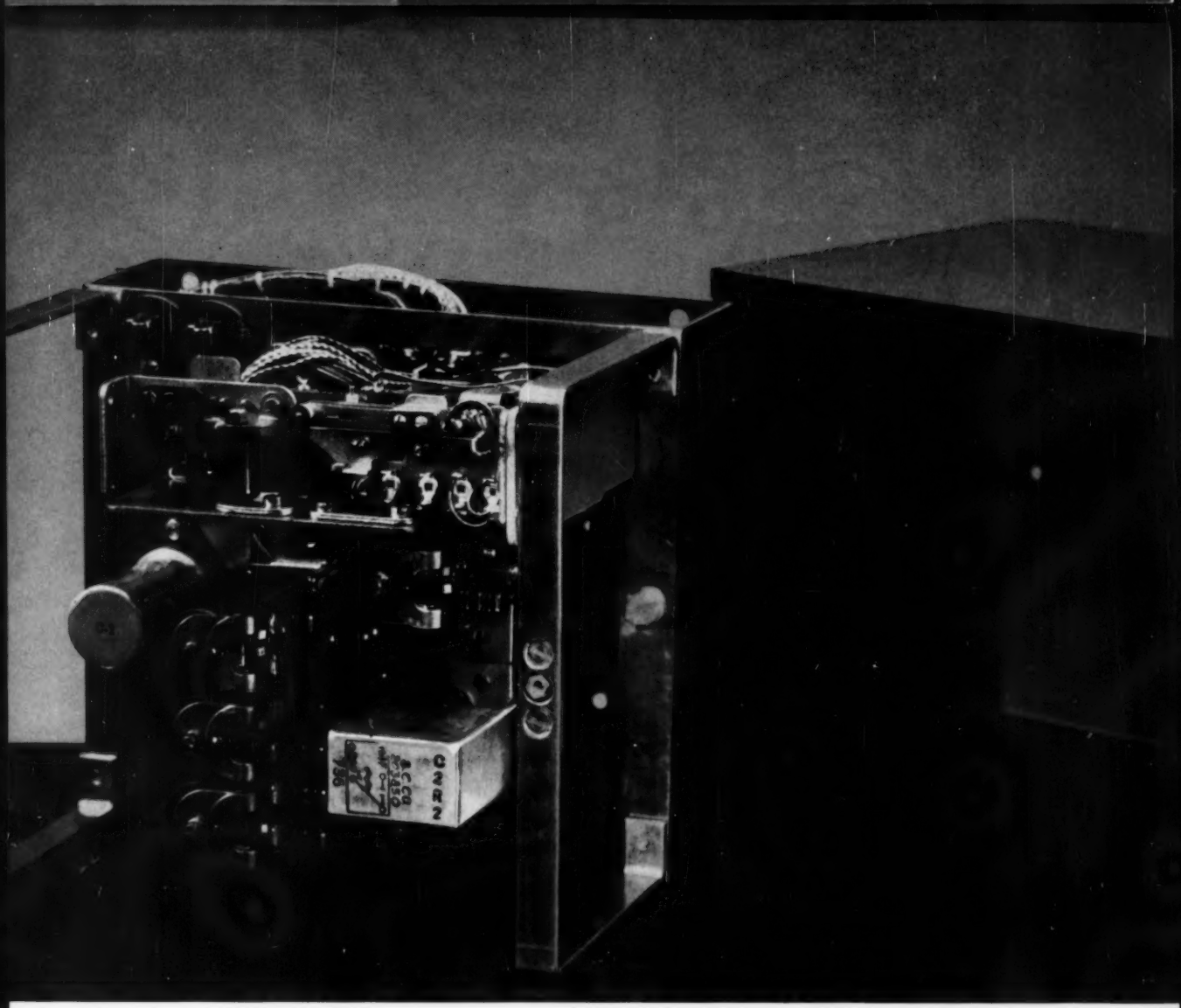
Guaranteed Circulation This Issue
13,058 of Which 12,446 Is Paid

NEW AID TO OPERATORS

Mrs. Rose Mary Dixon, operator at the Indianapolis Works of Western Electric Co., demonstrates the new transistorized amplifier designed by Bell Laboratories. Changes in amplification are made by turning knob. See page 51.

MANAGEMENT • PLANT • TRAFFIC • COMMERCIAL • LEGAL • ACCOUNTING

Off-the-shelf PBX...
priced to sell



Your smaller business subscribers who want *effective* PBX service *trimmed to their budgets* will like this 2-line, 10-station system—available immediately *from stock.*

Using our "1573-W" 2-line telephone for each station, this system provides positive, fully selective intercom between stations. Other advantages include: hold feature on the instruments; selective line signaling; recall service without replacing the handset. Minimum wiring results in very simple installation.

Our 2-line, 10-station PBX is *customer-preferred* because it gives the utmost in simplicity, flexibility, and low cost.

Your Stromberg-Carlson representative will gladly supply full data and selling aids.

STROMBERG-CARLSON A DIVISION OF GENERAL DYNAMICS CORPORATION

ATLANTA: TRinity 5-7467 • CHICAGO: STate 2-4235 • KANSAS CITY: HArrison 1-6618 • ROCHESTER: HUbbard 2-2200 • SAN FRANCISCO: OXford 7-3630

FLASHES AND PLUGS

NIGHT AND DAY. A Glen Burnie, Md. police sergeant, who works the "graveyard" shift, had been in bed only an hour or so when the telephone rang.

An attorney on the line said it was imperative he speak to him so the sergeant's wife reluctantly woke her husband. When he learned the call dealt with a minor accident he had investigated, he asked:

"Don't you realize I worked all night?"

"Of course," said the lawyer, "but don't you realize that this is my working day?"

The policeman hung up in anger. At 3 a.m. next day, he telephoned the attorney.

"This is my working day," he said. "Now what did you want to know about that accident?"

•

IT'S FOR YOU—DEAR. Bill, a Wisconsin man who turned manufacturer's representative for a golf equipment company, operated a one-man sales business from his home, with his wife, Jane, as bookkeeper.

On a Saturday morning, when the couple were sleeping late, the telephone rang on the nightstand. Jane answered. A customer was asking for the accountant. "I am the accountant," said she.

After a few minutes, the customer, satisfied that he had completed his business with the accountant, requested to be connected with the shipping clerk. For this switch, Jane handed the telephone to her husband.

When the customer then asked to speak to the secretary to the president, Bill readily handed the instrument back to Jane. "When will the president be in?" asked the customer. "Just a moment—I believe he is coming in now," she said. Once more, Jane and Bill switched.

What luck, thought the caller, as he hung up. He had spoken with everyone he wanted to reach—he even got through to the president!

And—at the other end of the line, the smooth-switching Bill and Jane had promptly returned to their slumbers.

•

THE NAME'S THE SAME. The new suburban Marshall Field Mayfair department store was so new it was not yet in the Milwaukee telephone directory. As a consequence, a local citizen was kept busy placating callers who asked for Marshall Field housewares or other departments.

Unhappy victim of the situation was—you guessed it—a gentleman named Marshall Field. A dozen times a day, he was answering the telephone, and apologizing, "Sorry, lady, I'm just a man, not a store."—*(Milwaukee Journal)*.

CHANGE OF ADDRESS

Please notify your local postmaster and the Circulation Dept. of TELEPHONY of change of address. Change cannot be made without the old as well as the new address. Allow three weeks for change of address to become effective.

Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY
Since 1901

March 21, 1959

CONTENTS

IN THE NATION'S CAPITAL 17
By Francis X. Welch

KEEPING UP WITH THE LATEST DEVELOPMENTS .. 19
By Ray Blain

PLANT MAN'S NOTEBOOK 25
By Ray Blain

FORMING GAS DAMS AND BLOCKS IN TELEPHONE CABLE 26
By W. R. Wright

COURTS AND COMMISSIONS 28

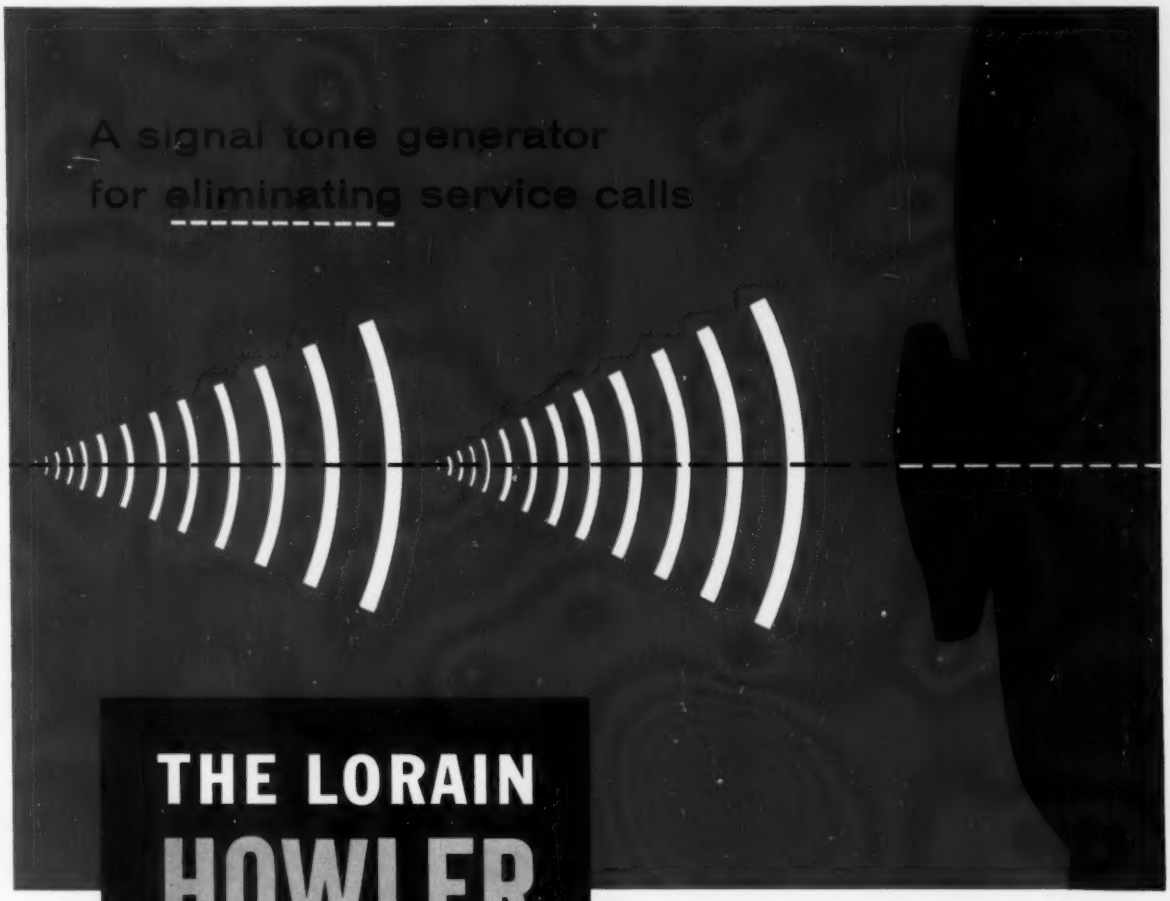
NEWS ON NEW PRODUCTS 52

H. D. FARGO JR., *President and Director of Advertising* • A. J. STULTS, *Vice President and Advertising Manager* • R. C. RENO, *Vice President and Editor* • DAN S. FARGO, *Vice President and Managing Editor* • DIANNE P. DRUCKER, *Associate Editor* • HELEN HARDIN, *Associate Editor* • FRANCIS X. WELCH, *Washington Editor* • RAY BLAIN, *Technical Editorial Director* • HAROLD B. McKAY, *Electronics Editor* • MAYME WORKMAN, *Traffic Editor* • VIVIAN RYDEN, *Circulation Manager*.

VAC **Circulation Audited and Verified (direct from auditor to subscriber) By Verified Audit Circulation Co.**

Published every week on Saturday by TELEPHONY PUBLISHING CORP., 608 S. Dearborn St., Chicago 5, Ill. Entered as second class matter at the Post Office at Chicago, Ill., under the act of Mar. 3, 1879. 30c per copy (except special issues—50c). Subscription $4.50, 1-year; $7.00, 2-years; $9.00, 3-years. Add $1.00 per year for postage to Canada and Pan American countries; $2.00 per year to Foreign countries. Telephone WAbash 2-2435.

A signal tone generator
for eliminating service calls



THE LORAIN HOWLER

Write for Bulletin 167A

THE TONE THAT HANGS THE PHONE

The Lorain Howler's unique tone can't go unheard, can't be mistaken for any familiar sound. It begins softly on a high note, gradually declines in pitch while it increases in volume. It covers the full frequency range where both ears and receivers are most sensitive.

SAFE FOR EAR, SAFE FOR EQUIPMENT

The slow increase in signal volume allows plenty of time for removal of the receiver from the ear. And the Howler's distinctive tone can be sent out at a much lower voltage than is customary, protecting against damage to receivers or cable cross-talk.

EASY START, AUTOMATIC STOP

The Howler is plugged into the line at the protector frame or test desk. A push-button or a remote key starts it. A relay automatically stops the Howler and restores the line to service when the receiver is replaced. AC and DC input. Signal output: 0—40 volts, 2.5 watts.

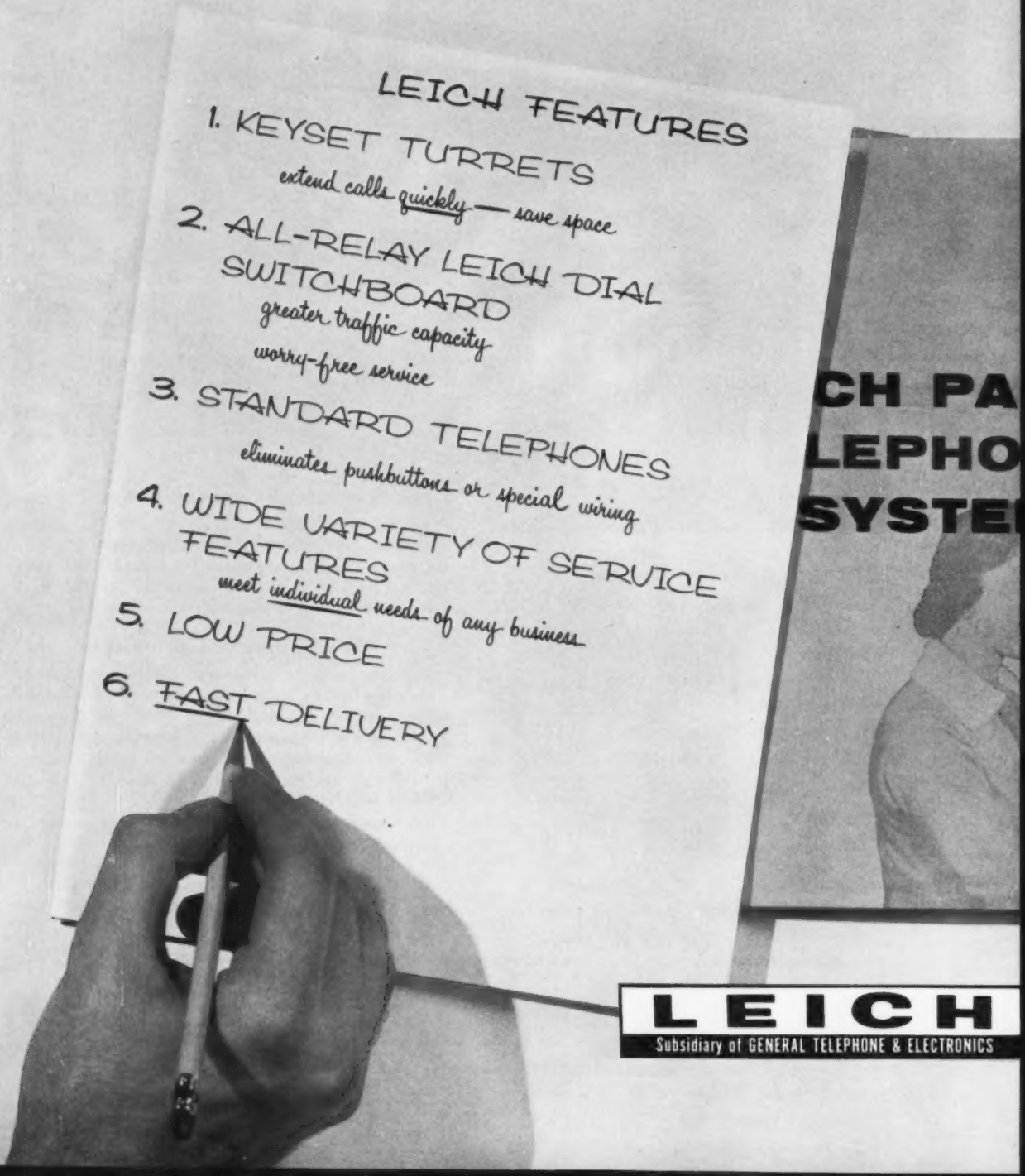
THE ONLY COMPLETE LINE OF POWER EQUIPMENT FOR COMMUNICATIONS

our equipment
is sold through leading
telephone distributers

LORAIN *Products Corporation*

1122 F Street Lorain, Ohio Phone: ATlantic 8-9191

Show Why 500 Businesses



LEICH

Subsidiary of GENERAL TELEPHONE & ELECTRONICS

How to Sell Your LEICH PABX Prospects

Are Happy

with Modern, Dependable LEICH PABX's

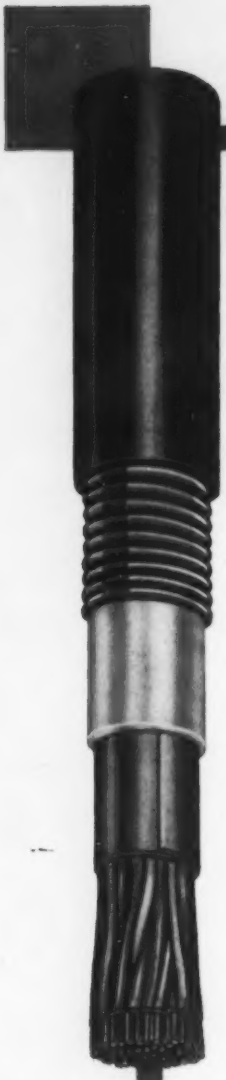
When you put yourself in your subscribers' shoes, it's easy to see what they want most in a PABX. They're looking for compact, modern equipment that offers quick extension of calls, greater traffic capacity, and a variety of service features. They want a PABX that keeps their telephone traffic moving without a hitch.

Because Leich's PABX's offer all of these advantages, they're popular with a great many businesses of all types. In fact, over 500 companies across the country are happy with Leich PABX's. A few of these are—

Lee County Bank, Fort Myers, Florida
Division of Highways, State of Illinois
Carbondale, Illinois
"M" System Food Stores, San Angelo, Texas
Nelson Taylor, Inc., Gloversville, New York
American Bank & Trust Co., Monroe, North Carolina
U. S. Army Nike Site, Redmond, Washington
O. S. Keene Machine Co., Middlebury, Indiana
Kellogg City Hospital, Kellogg, Idaho

Write for Leich's PABX Sales Kit.

LEICH SALES CORPORATION • 427 WEST RANDOLPH STREET • CHICAGO 6, ILLINOIS
PACIFIC COAST: 11401 W. PICO BLVD., LOS ANGELES 64, CAL.
SOUTHWEST: 1227 SLOCUM STREET, DALLAS 7, TEXAS
EAST: 3651 CONNECTICUT AVENUE, YOUNGSTOWN, OHIO
SOUTHEAST: 5126 SOUTH LOIS ST., TAMPA 11, FLORIDA
manufacturers of telephones, switchboards and related apparatus since 1907



ALPETH* TELEPHONE CABLE

BY *REX*

FULLY COLOR CODED

FOR AERIAL AND DUCT TO REA SPEC PE-22
BURIED SERVICE TO REA SPEC PE-23

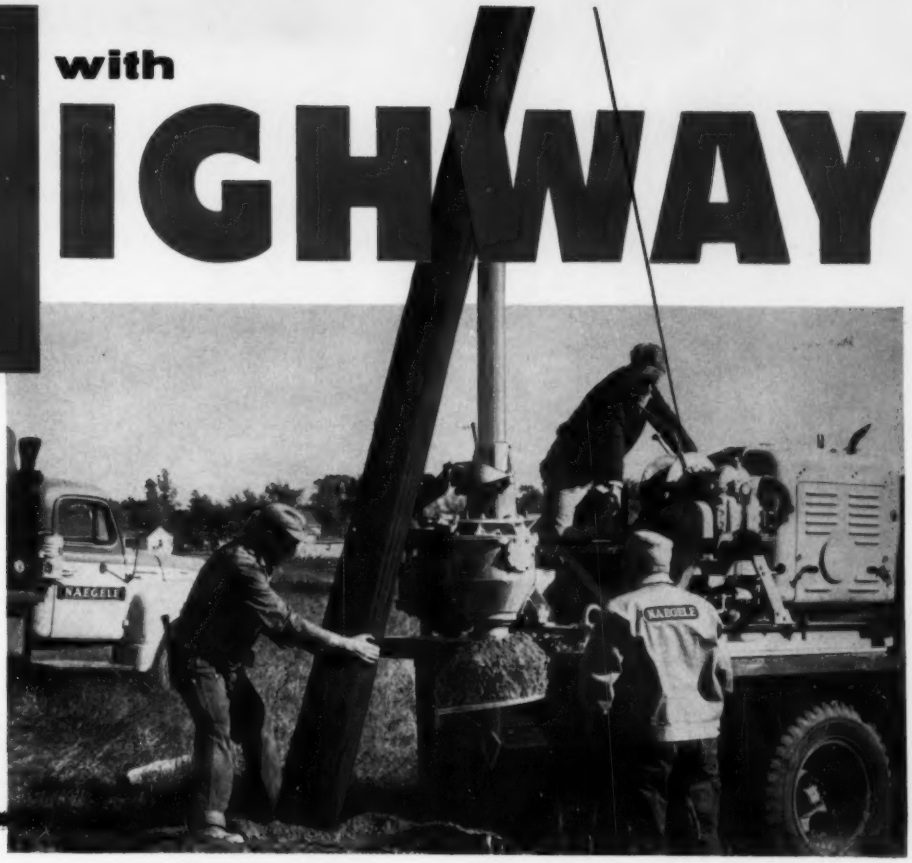
WRITE FOR CATALOG — CONTAINS COMPLETE DATA AND SPECIFICATIONS FOR ALL REX TELEPHONE WIRES and CABLES.

***Manufactured under license agreement with Western Electric Co., Inc.**

THE *REX* CORPORATION

Subsidiary of American Enka Corporation
Hayward Road, West Acton, Mass.

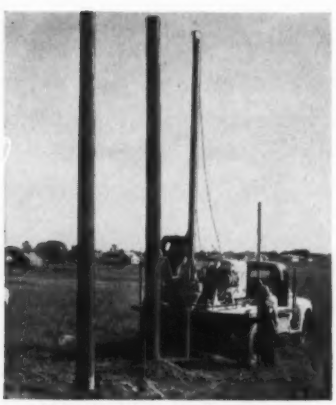
with HIGHWAY



NAEGELE

cuts a 1½-day job to

1 hr. 57 min. with a 4-man crew



Digs the hole, sets the pole in any type of soil, including frost and hard pan.

"We can put up more boards, have happier crews, and take less time now that we have our Highway digger," says Bill Hayes, Superintendent of Naegele Outdoor Advertising Company, Milwaukee, Wisconsin. Since Naegele bought an HDAMS Earth-Boring Machine, they've saved over $50 on labor per board. Bill expects even greater savings this winter as his unit can dig frost and hard soil easily and swiftly.

The Naegele-owned HDAMS Earth-Boring Machine can dig holes 9 to 20 inches in diameter, and up to 10 feet deep. In just two minutes the 20-inch auger can dig a seven-foot hole! This skid-mounted digger is a *complete* unit with integral winch and derrick, offering you economy of operation, convenient controls, and positive gear drive. Why not send for complete information and specifications today?

HIGHWAY®

UTILITY DIVISION

HIGHWAY TRAILER COMPANY

EDGERTON, WISCONSIN

Manufacturers of: Commercial Trailers • Trailerized Tanks and Dry-Bulk Haulers • Cargo Containers — Land, Sea and Air • Public Utility Bodies • Earth-Boring Machines • Pole and Cable Reel Trailers • Winches • Power Take-Offs • Service Accessories

SALES AND SERVICE IN PRINCIPAL CITIES

these three spectres are haunting your future!

Are you already face to face with the problems facing telephone operating companies?

Steady population growth means ever-increasing numbers of telephones—and this station increase is being accelerated by population shifts to areas served by Independents.

Increases in telephone usage, as the phone becomes more and more indispensable to our business and social life, imposes heavier and heavier traffic loads on switching equipment.

Additionally, there is the spectre of technical progress which is rapidly making each operating company, even the smallest, part of a nationwide telephone network in which every phone in the U.S. will have direct access to each of the 60 odd million other phones.

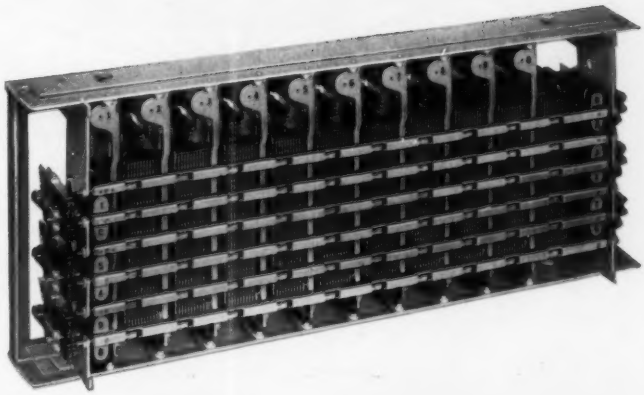
Switching equipment, to adequately meet the critical demands the future will impose upon it, must meet these specifications:

1. It must be readily and economically expandable to keep pace with station increases.
2. It must occupy minimum space to reduce building costs.
3. It must be flexible to enable operating companies to provide single party service as line fill drops.
4. It must be compatible with other systems.
5. It must have operating characteristics that maximize speed and traffic handling capacities.
6. It must be fully adaptable to network operation, DDD and automatic toll ticketing.
7. It must be inherently maintenance free and economical to operate.

North By-Path Crossbar is the only Switching Equipment on the Market That Meets All These Specifications!

As you look to the future, as you face the problems the future will impose, it becomes increasingly obvious that North By-Path Crossbar, the "proved in use" crossbar system, is THE answer to your future switching requirements.

Let your North Sales Engineer help you plan for the future NOW—with



North BY-PATH CROSSBAR

another telephone engineering achievement from

THE DYNAMIC FORCE IN THE TELEPHONE INDUSTRY

NORTH ELECTRIC COMPANY

Galion, Ohio

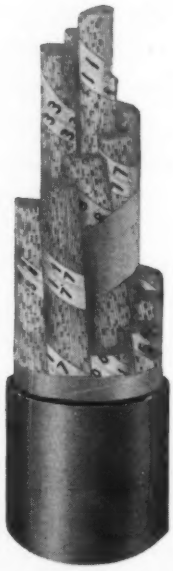
104-pair 16 A.W.G. dry-core insulated aluminium sheathed telephone cable designed and manufactured for British Railways by BICC.

We make telephone cables to one standard—the highest attainable; just as you would wish to make them yourself.

TELEPHONE CABLES

for exchange area or long distance systems

Composite coaxial long-distance telephone cable.



1836-pair 26 A.W.G. unit twin telephone cable.

BRITISH INSULATED CALLENDER'S CABLES LIMITED, 21 Bloomsbury Street, London, W.C.1

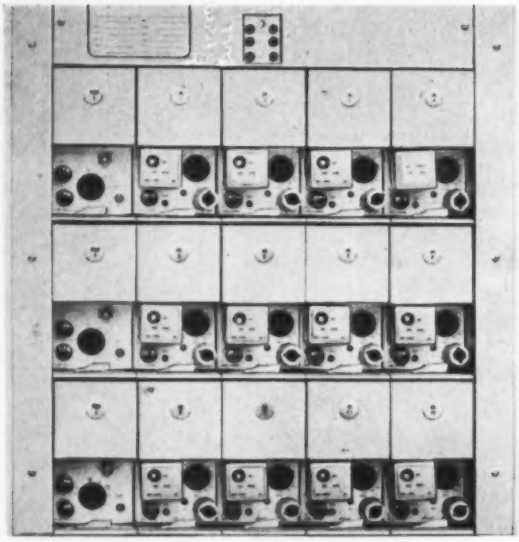
Branches and Agents throughout the World

*Koiled Kords
RETRACTILE CORDS
Give the Best Service
KOILED KORDS have proved over the years that they give the best service to subscribers and telephone companies alike.
KOILED KORDS have reduced cord maintenance and replacement to an absolute minimum.
KOILED KORDS keep their spring-like shape and last indefinitely under the toughest conditions.
KOILED KORDS are smooth, clean and cannot be harmed by moisture, grease, acid fumes or sunlight. Be sure your subscribers have the best . . . KOILED KORDS
Available from your independent telephone supplier in black and many colors to complement colored telephones.
Koiled Kords
INC., BOX K, NEW HAVEN 14, CONN.
Telephone: CHestnut 8-5515
TWX — NH84
KOILED KORDS, THE ORIGINAL RETRACTILE CORDS, ARE THE RESULT OF 17 YEARS OF RESEARCH, DEVELOPMENT AND USE.
*KOILED KORDS IS A TRADE MARK OF KOILED KORDS, INC.

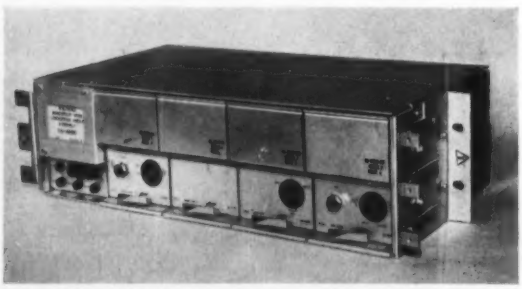
Cut yourself in on

with LENKURT Carrier for microwave

...direct interconnection



Typical Lenkurt 45-Class Basegroup Channel Bank provides channelizing and grouping equipment for 12 voice channels, yet occupies only 22¾ inches of vertical rack space. Type 45C Carrier provides for economical expansion in 4-channel groups by the simple addition of interchangeable plug-in units.



Lenkurt Basegroup Transfer-Converter permits transfer of 12-channel groups between Lenkurt 45-Class systems and Western Electric J, K, L, or CCITT conforming systems. It eliminates expense of extra channelizing equipment—permits different carrier systems to be connected in tandem without demodulating the individual carrier channels to voice frequency.

Toll business is growing at an almost incredible rate—but nothing like what can be expected as nationwide toll dialing is achieved. Are you preparing to get your full share of these mounting toll dollars?

If not, we suggest it's time to get started. Let Automatic Electric engineers help you develop your toll circuits with universally accepted Lenkurt Carrier and Microwave equipment.

Universal 45-Class Carrier

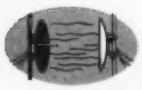
Lenkurt Carrier is the simplest, fastest, most economical way to add new circuits. Lenkurt's famous 45-class Carrier systems—for open wire, cable and microwave—offer the unique advantage of *direct interconnection at carrier frequencies*. Thus, your entire carrier network can be completely coordinated! No need for expensive back-to-back equipment to convert carrier to voice frequencies, and then back to carrier. Maintenance is simpler—distortion reduced—performance improved. Think what it means in savings to you!

New Lenkurt Microtel Type 74A

Lenkurt's new Type 74A Microtel for the 6000 mc band is the latest, most advanced microwave equipment on the market. Utilizing miniaturized plug-in components similar to those in Lenkurt 45-class Carrier equipment, it offers extreme flexibility—meets expansion needs from as few as four channels to high-density intercity systems.

Automatic Electric offers you Lenkurt Carrier and Microtel in a complete package—*engineered, furnished and installed*. If you want, we'll do the surveying—erect microwave towers—take complete responsibility for a "turn-key" installation, including on-the-job and factory training of your people. May we send you more information?

toll revenues!

 open wire or cable

at carrier frequencies!

Lenkurt Microtel Type 74A takes less floor space—requires smaller antennas—uses fewer tubes—consumes less power! A single terminal can accommodate 4 to 240 channels; system can be expanded to 960 voice channels, plus 64 supervisory, remote-control or telemetering channels, *without additional antenna equipment.*

Rigid Quality Control—Three of more than 150 quality control stations at the Lenkurt Factory. These stations perform a 100% inspection of master oscillator units, regulators and power supplies for 45-Class Carrier systems. Highest standards of precision manufacture and inspection at every step mean lowest costs over the years.

Automatic Electric Sales Corporation
Northlake, Illinois

I would like more information on Lenkurt Carrier ☐
Microtel ☐ *Please have your representative call* ☐

NAME..... TITLE.....

COMPANY.....

ADDRESS.....

CITY..... ZONE..... STATE.....

AUTOMATIC ELECTRIC

Subsidiary of **GENERAL TELEPHONE**

1 out of 13

MID-EASTERN DIVISION

IS ONE OUT OF THIRTEEN DIVISIONS

CLERICAL DEPARTMENT

ART DEPARTMENT

The Mid-Eastern Division is one out of 13 Divisions which serve more than 275 Bell and Independent Telephone Companies in 29 states and Canada for L. M. Berry and Company.

Each Division is comprised of experienced sales, art, and clerical personnel who are highly trained in the field of Directory Advertising. These specialists have been able to produce and maintain maximum directory results in all directories, as well as further strengthening the best public relations with subscribers.

You, too, should have L. M. Berry and Company handle the complete planning and selling of your Directory Advertising.

SALES PLANNING DEPARTMENT

Call or write today!

Telephone Directory SINCE 1910 *Advertising Exclusively*

L. M. BERRY AND COMPANY

Hulman Building *BAldwin 4-7421 • Dayton 2, Ohio*

IN THE NATION'S CAPITAL

BY FRANCIS X. WELCH, WASHINGTON EDITOR

FPC hears representative of 71 electric utilities on proper accounting classification of expenses incurred in advertising supporting private enterprise. "Open-end" application for rate increase discussed. California Commission urged to fix rates to require utilities to ask for and pass on to ratepayers so-called benefits of accelerated depreciation.

TWO WEEKS ago in this department, comment was made on a recent U. S. Supreme Court decision regarding the propriety of tax deductions claimed by business enterprises for expenditures (including advertising expenses) to promote or defeat specific legislation or elections. This decision involved (in the so-called Cammarano and Strauss cases) money spent by liquor interests in successfully defeating referendum measures in Arkansas and Washington.

These expenditures included advertising expenses, and reference was made to similar funds laid out by public utility companies which might fall under the Internal Revenue's ban on deductions for lobbying activities. There was also discussed the allied question of inclusion of such amounts in operating expenses for rate-making, or simply for accounting purposes, by utility companies.

Earlier this month, within a few days after the Cammarano decision had been handed down, Professor A. J. G. Priest of the University of Virginia Law School, who has been retained to represent 71 electric utilities on this matter, appeared before Examiner Edward B. Marsh of the Federal Power Commission. The FPC is considering only accounting regulation for the proper classification of expenses incurred by these electric utilities in contributing to a 1957 advertising campaign, opposing public ownership in the public utility field.

Professor Priest made an interesting distinction between what the liquor interest did in the Cammarano case and what the electric utilities did in the matter of contributing to the 1957 electric companies' advertising program. Whether this distinction will stand up remains to be seen in final disposition by the FPC of the accounting matter in which Priest appeared. But, he did make a very forceful argument.

Priest drew a line between advertising in connection with matters which are "politically controversial" as compared with advertising in connection with "general policy discussion." He defined "politically controversial" as any effort to influence specific elections or legislations. In other words, there would have to be an actual bill pending (or perhaps proposed to be introduced) or an actual question on an election ballot before advertising in that connection would become "politically controversial." Otherwise, a mere discussion of general policy—such as the superiority of the American free enterprise system as compared with foreign socialistic experiments—would *not* be lobbying, but simply editorializing. It would, of course, be editorializing in the nature of special pleading for the interest of the industry doing the advertising. But, all forms of advertising are special pleadings in that sense, in one form or another.

According to Priest, it would be only proper for public utilities, contributing to the publication of such paid editorializing, to classify their contributions as business expenses for accounting purposes. He also pointed to the fact that regulatory commissions would still have an opportunity, in any actual rate case, to disallow expenses in this category which were actually found to be unreasonable, objectionable, or unjustifiable on the merits of the individual case.

Recent Rate Cases

The application of the Michigan Bell Telephone Co. for higher rates before the Michigan Public Service Commission is an example of a technique which is not often used these days in rate cases. But, it is an approach which this observer has long felt has considerable merit. That is the filing of a so-called "open-end" application for an unspecified rate increase. Instead of going in and asking the commission for "X" amount of dollars in additional revenue (and then having the commission cut it in half or less), the applying utility would simply make a case on the argument that present rates are not yielding a reasonable return. This puts the responsibility for fixing a reasonable rate on the commission.

Of course, it isn't always possible to do this, under various state laws which may sometimes require that any proposed increase should be specific as to the amount proposed. Where the local statute has such a definite requirement, there isn't much else to do, except to ask for a specified amount and then take whatever the commission is willing to grant, subject to court appeal.

One of the difficulties in specifying a proposed amount of a rate increase is that it forces the utility company, unwillingly perhaps, into a position of bargaining with the commission, instead of asking for something which ought to be its legal right under the law, subject to proof as to reasonableness.

This bargaining technique might be just as much of a burden to the commission as it is to the public utility company.

For example, a public utility company may feel that it has every right under the law to ask for an increase, of say 1 million dollars. Yet, if the commission has already established a pattern of scaling down rate increase proposals of other public utility companies by 50 per cent or more, there is

a strong temptation for the company to boost the "asking price" in the first instance, just in order to be in a position to come out even on what can be expected to result.

Looking at the same situation from the commission's point of view, there is—in these days of political controversy—a certain disadvantage in having to grant a public utility company every last dollar of an increase requested, even though the commission may be persuaded at the rate case hearings that an honest and convincing case has been made to justify every cent of it. Local agitators, who generally know little of rate case theory or procedure and care less, are swift to rush into print or otherwise air criticism of a commission which has granted a public utility company "everything it asked for." The implication of such criticism is that a public utility company *always* asks for more than it is entitled to get, and that such claims should be automatically discounted even before hearing or proof.

A Michigan Bell spokesman said that his organization had had some unsatisfactory experiences with specific rate increase proposals. Michigan Bell two years ago was given 2.2 million dollars in rate adjustments after it had asked for 9.7 million dollars. "We have adopted this (open-end application)

(Please turn to page 45)

Five Telephone Loans OK'd By REA

Five telephone loans were approved during the week of Mar. 2 by the Rural Electrification Administration as follows:

Poka-Lambro Rural Telephone Cooperative, Tahoka, Tex.; $155,000; Mar. 2.

These and funds from a prior loan will enable the borrower to furnish initial service to 382 subscribers and to improve service for 28 existing subscribers in its service area. The present subscribers now receive magneto service over 9 miles of line owned and operated by the General Telephone Co. The borrower proposes to acquire these facilities from General and integrate them with its own system.

A new automatic central office is scheduled to be constructed at Loop. About 110 of the subscribers who will receive initial service as a result of this loan are in the Loop community. The remaining 272 are located in the borrower's present service area.

The two REA loans to this borrower total $1,992,000 which will benefit 2,133 subscribers. The system will consist of 14 exchanges of which 13 are now in operation serving approximately 1,650 subscribers.

Lee Bartlett is president of the Poka-Lambro cooperative and W. D. Harmon is manager.

•

United Utilities of West Virginia, Inc., Davis; $805,000; Mar. 2.

Approximately 930 existing subscribers and 736 new subscribers will benefit from this loan to the new West Virginia borrower. As a nucleus for the service, the borrower plans to acquire, rehabilitate and expand the following telephone facilities: Bruceton & Kingwood Telephone Co., and the Farmers Mutual Telephone Co., both at Bruceton Mills; the Rockville & Kingwood Telephone Co., Valley Point, and the Flemington Telephone Co. The acquired companies now provide automatic, common battery and magneto service to the existing subscribers.

The borrower plans to construct a new automatic central office at Bruceton Mills which will also serve the Valley Point area, and to remodel the present building in Flemington to provide space for automatic equipment and limited commercial office facilities.

Edward S. Filler is president of United Utilities of W. Va. When the system is in operation, Allen Martin will serve as local manager for the Bruceton Mills exchange. Joseph Ball will manage the Flemington exchange.

Mijo Telephone Co., Inc., Spring Hill, Kan., $347,000; Mar. 4.

The new borrower proposes to convert its system, which provides magneto service to 463 subscribers, to an all-automatic operation. It will also acquire and convert the facilities of the Bucyrus Mutual Telephone Co. which furnishes magneto service to 129 subscribers.

The Spring Hill magneto facilities will be replaced with a new automatic central-commercial office building. Rehabilitation and new construction will enable the borrower to furnish initial service for 151 subscribers in the area as well as to improve service for the existing subscribers.

Fred P. Marshall is both president and manager of the Mijo Company.

•

West Side Telephone Co., Laurel Point, W. V., (Mailing address: Morgantown, W. Va.); $180,000; Mar. 4.

These and funds from prior loans will enable the borrower to improve service for 163 existing subscribers and to furnish initial service to 139 subscribers in West Virginia and in Pennsylvania. The existing subscribers now receive magneto service from the Dunkard Valley Telephone Co., Core, W. Va. The borrower plans to acquire and integrate these facilities.

According to present plans, a new automatic central office will replace the magneto switchboard at Core. A small portion of the loan will be used to acquire a site and construct new headquarters facilities in Laurel Point.

The West Side company has received REA loans totaling $395,000 which will make possible new and improved service to 833 subscribers. The completed system will consist of two exchanges. The Laurel Point exchange now furnishes dial service to over 400 subscribers.

Cecil Dodrill is president and D. C. Dodrill is manager of the West Side company.

•

Hardy Telephone Co., Mathias, W. Va.; $61,000; Mar. 4. This loan will be used to finance completion of the borrower's authorized system. REA loans to the company now total $414,000 which will make possible new and improved service for 620 subscribers. The system's one exchange at Lost River has been cutover and is now furnishing dial service to approximately 300 subscribers in the area.

R. L. Baker is vice president of the Hardy company and Oscar Clark Jr. is manager.

KEEPING UP WITH the latest developments

By RAY BLAIN

Part 1

THE INDEPENDENT telephone industry continues to grow at an amazing rate. Forecast studies at the present time prove of very little value as the telephone growth in most areas is unpredictable.

The mass migration from the downtown sections of large cities to the urban areas is creating a myriad of difficult problems for many of our Independent operating companies. In light of this situation, we take pleasure in presenting information on many new products and devices which have been introduced recently in the hope that they will prove helpful to Independent companies in the rehabilitation and expansion of their plants to meet the increasing demand for telephone service. If you have a need for additional information on any of these items, please let us or the manufacturers know.

* * *

Telephone Type Computer. (Fig. 1). A new concept in computers that offers the telephone industry the advantages of computer techniques on frequent and repetitive computational problems is now available. Called the Series F2000 Computer, it is the newest addition to the Burroughs line data processing equipment.

The exclusive mechanical plugboard program selector provides a high degree of programming flexibility.

Up to 19 memory units may be used for data storage of varying factors or totals. Among the data storage features of the new machine are multiplier, multiplicand and product accumulator storage.

Four or more routines may be programmed on each interchangeable plugboard, and each program directs the computer through all of its automatic operations.

EDITOR'S NOTE: ***Each year our technical editorial director, Ray Blain, reviews, in a series of articles, new products and techniques for the benefit of operating telephone companies. This is the first of six articles covering recent developments.***

All mathematical functions—subtotalling, totalling, carriage movement, printing and read-out, may be performed automatically from any one of the 19 memory storage units.

A full adding machine type keyboard is used for the input of the Series F2000.

Among the many applications for which the machine is practical are billing, payroll computation and check preparation, and securing operating statistics.

Fig. 1. Telephone type computer.

Executive Quick-Call Direct Line System. (Fig. 2). A busy executive merely pushes a button to reach any one of as many as 20 preselected PABX stations by means of the compact, desk-top control cabinet used at the master station of the new Type 11 Executive Quick Call direct line system, recently announced by Automatic Electric Co.

All of the relay equipment needed in the system—designed for mounting on a 19-inch relay rack—is located in the switchroom, and is connected to the master station by a 30-conductor cable. Nothing has to be done to any of the preselected stations to make them accessible from the master station. Changing of preselected stations requires only a main frame jumper change.

Two rolls of 11 translucent pushbuttons are located across the front of the control cabinet. A description strip fits into a holder between the rows. Twenty of the pushbuttons are for the selection of PABX stations. The other two pushbuttons control special features.

To place a call to one of the 20 preselected stations in the system, the executive merely presses the appropriate button, and then lifts the handset of his own telephone. There's no need to dial any digit.

Should the line called from the executive's cabinet be busy, the equipment is arranged to "camp" on the line until the called station disconnects, at which time ringing current will be applied.

The "Hold-Tone-Error" button can be used to hold an outside call; to put a tone on a busy line to indicate an executive call waiting (upon hearing this tone, both parties hang up, at which time ringing current is transmitted over the called line); and it can

Fig. 2. Executive quick-call direct line system.

restore the control relay actuated by a station-selecting pushbutton operated in error—provided the handset of the originating telephone is still "on hook."

An executive right-of-way feature is provided. By pressing the CT (Cut Through) pushbutton, the executive's telephone is automatically connected to the busy line.

•

Portable Equipment Routiner. (Fig. 3). The portable equipment routiner, by Stromberg-Carlson Co., replaces the time-consuming method of locating switching equipment troubles (after they develop) by means of manually operated test equipment. The routiner places calls from a line circuit to a predetermined connector terminal—finds faults *before* they become trouble calls. It takes the *true* path of the call, including cabling *between* ranks of switches, and automatically detects and clearly indicates any faults encountered in the dial switch train.

The routiner may be used in central offices using directory numbers of seven digits or less. Pulses are generated in and supplied from the No. 19 Pulse Generating and Measuring Test Set. Essential for use with the equipment routiner, the No. 19 pulse generator has many additional separate and important uses wherever a reliable and variable continuous pulse source is required.

Companies with more than one exchange will find the routiner's feature of complete portability a major asset. By placing in each office an additional stepping circuit, which would be an optional permanent fixture, the routiner could be transported easily from one exchange to another by one man. In this way, the regular and complete routining, entirely automatic, will detect and locate many faults usually missed when the tedious, day-long job of checking circuit after circuit, and rank after rank of switches, is done manually. In addition, while the routiner automatically does its job, the test man may be utilized for other important tasks.

Among other features of the equipment routiner are: Two alarms, one visual and one audible, which operate simultaneously and indicate the type and location of the fault; each digit being pulsed is shown on a special projector-type device; a remote controller, shown in the right foreground of the routiner in the accompanying photo, allows the test man to control the routiner while he observes closely the operation of a particular switch. This device fits in the palm of the hand and is equipped with a long cord and two control buttons—one button to pulse one digit at a time, the other to release the routiner (and the switch train) at any desired stage of a progressing call. The routiner includes a 1000-cycle tone which may be applied to a switch train to facilitate tracing a call on a faulty circuit.

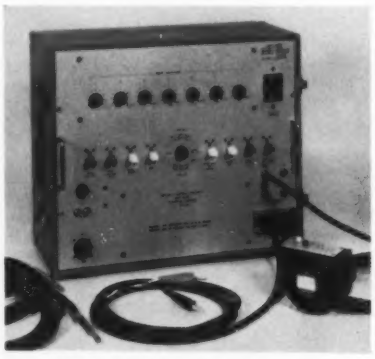


Fig. 3. Portable equipment routiner.

The equipment routiner will detect and clearly indicate these common faults found in the switching equipment: Switch-through failure, caused by excessively long inter-digit time requirement of a circuit; switch-through failure due to other equipment troubles; release failure; failure to seize connector terminal due to maladjustment of pulsing relays.

The new portable equipment routiner finds faults before they become troubles. Test set is 16 inches long, 14 inches high, 8 inches deep; weighs about 35 lbs.

•

Mark-Sense Calculagraph. (Fig. 4). It will be noted from the accompanying photograph that this Calculagraph has setback handles, necessary for use with the mark-sense toll ticket. This toll ticket, like all tabulating cards, must not be bent or mutilated in any manner. For this reason, the left handle of this Calculagraph has been set back so that even in the operated position it does not come forward far enough to damage the ticket.

Fig. 4. The mark-sense Calculagraph.

The old style toll ticket was only 2½ inches wide and did not protrude over the side of the Calculagraph as does the new mark-sense ticket, so this was not formerly a problem. The new mark-sense Model 33 Calculagraph looks the same from the outside as the standard Model 33 except for the position of the left handle. There are, however, several

internal differences in the two instruments.

With the increasingly widespread acceptance of the mark sense method of toll call accounting, this new model has become widely used in recent months.

•

Subscriber and Trunk Carrier Systems. (Fig. 5). Two new Kellogg carrier systems, the Type K31 and Type K32, are now available.

The K31 is a rural subscriber carrier system providing party-line service between rural subscribers and a central office.

The K32 system provides open-wire trunk carrier service between two central offices.

The two systems are similar in electrical design and physical arrangement. The equipment in both systems is transistorized. Etched circuit wiring, miniaturized sub-assemblies and plug-in connection are used throughout. Both systems can provide up to eight separate voice channels.

Fig. 5. Subscriber and trunk carrier system.

Normally, both systems are arranged to use a stacked frequency allocation plan, however, they may be arranged to use a grouped frequency allocation plan wherever repeaters are required. Regulated carrier repeaters are available. Both systems employ an amplitude-modulated double-sideband carrier-transmitted method of transmission.

•

Paystation Tone Identifier. (Fig. 6). This Leich Electric identifier is used with postpay paystations where all collection of coins is under the aural supervision of an operator after the charge becomes payable. It cannot be used with semi-postpay paystations.

This paystation tone identifier is recommended for use on subscriber lines at stations equipped with a standard desk or wall instrument and an auxiliary coin collector. It may also be used with self-contained manual postpay paystations, to which a dial may be added for use in automatic exchanges.

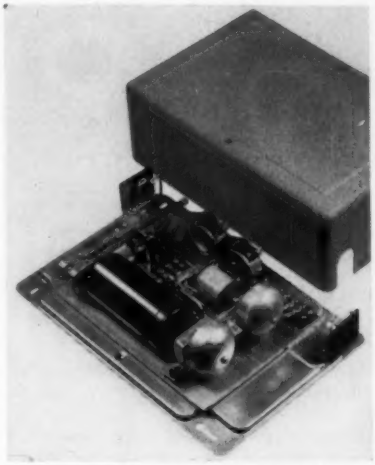


Fig. 6. Paystation tone identifier.

The identifier is a transistorized tone generator which is incorporated into the paystation ringer box. This circuit gives the required paystation tone to the operator on toll calls. The operator then recognizes that a paystation is calling rather than a flat-rate station on the same line.

For the tone to be effective on calls to the toll operator, the toll trunks must be arranged to return and maintain reverse battery supervision when an operator answers. If the exchange is dial, local calls from the paystation are completed without charge.

•

Portable Hybrid Test Sets. (Fig. 7 and 8.). How many times have you heard telephone men say: "Why can't we have a complete test hybrid, all in one case? No maze of tape and wire connections. No soldering and unsoldering. No strapping and unstrapping. No broken connections that are so difficult to find, so time-consuming to repair."

A new portable hybrid test set, by Airtronics International Corp., eliminates these problems. Adjustments are made with a switch or knob settings for all acceptance tests on repeatered toll and interoffice trunks.

Fig. 8. Model 20-B hybrid test set.

This Model 10-A portable test hybrid, shown in *Fig. 7*, was designed to aid in making return loss, singing point, impedance compensator and similar type measurements on toll and local cable facilities. It consists of a 600-ohm repeat coil hybrid, an impedance matching transformer to give either 900 ohm or 1,500 ohm outputs, and impedance compensator consisting of a 44-mh toroid and decade capacitor and varying jacks to give flexible access to all components.

The Airtronics Model 20-B hybrid set *(Fig. 8)* was designed to aid in making cable acceptance tests, using singing point and return loss techniques where precision network termination is required. A repeat coil hybrid is arranged with switchable networks

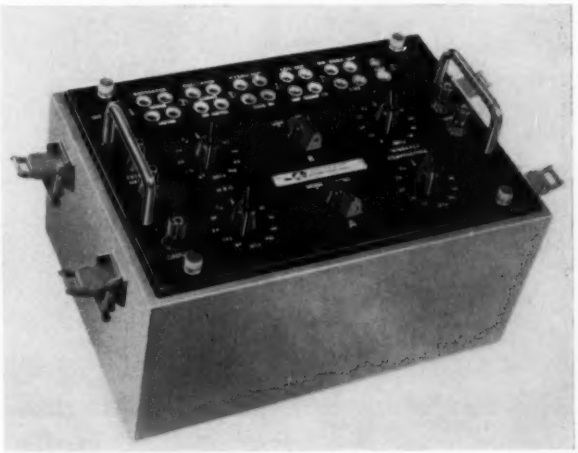


Fig. 7. Portable hybrid test set.

and a precision network built-out decade capacitor. This gives the set a high degree of flexibility when testing on various gauges of cables and loading schemes. A low pass filter can be switched in one of the four wire legs to reduce unwanted interference or provide measurements only within its pass band.

The two-wire side of the hybrid appears on both binding posts and test jacks. Binding posts are also provided for connecting an external network for those situations not covered by the internal nets.

The Model 10-A and the Model 20-B Hybrid test sets complement each other, and each has its place in testing telephone cables.

•

Transistorized Sub-Cycles. (Fig. 9). The new Lorain 20-cycle ringing frequency generators are all designed to operate directly from a dc source. They are available in three models having different output ratings. These ratings are 7.5 watts, 25 watts, and 50 watts. These units include transistor circuits conservatively designed to give long, continuous trouble-free service.

In all models, the output voltage is regulated and is compensated for changes in battery voltages and changes in load. The models operate on 50 volts dc input and all draw minimum current from the office battery. The output voltage regulation approaches that of the ac operated Sub-Cycles in the biased-core (BC) series.

The 20-cycle voltage is filtered as well as regulated. The wave-shape approaches a sine-wave, except for the reverting tone, which is introduced by a patented tone circuit. The tone is of controlled quality, minimizing circuit noise while providing adequate audibility. Taps are provided for adjusting the tone level in all models.

The 20 cycle Sub-Cycles are designed so that circuit components are inherently protected against overload. These units may be subjected to severe overloads including inductive or capacitive loads or even short circuit intermittently or continuously without danger of damage and without blowing fuses. As soon as the overload is removed, normal output voltage is immediately restored.

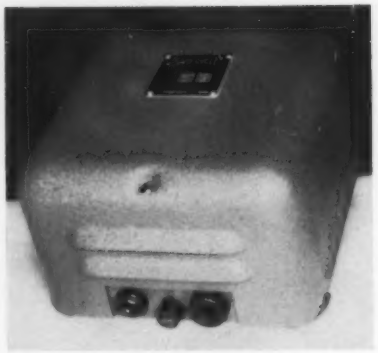


Fig. 9-A. Transistorized dc Sub-Cycle for wall mounting.

An ample input filter is provided in each model to prevent the introduction of noise into the battery which supplies power to the Sub-Cycle. These units are available for both rack and wall mounting.

•

Motorswitch System. (Fig. 10). The U. S. Instruments Corp.'s motorswitch automatic switching system represents nearly 30 years of research and development that has taken place in at least three different countries on the motorswitch technique.

The earliest motorswitch introduced to electro-mechanical switching, a flexible individual motor drive, a high setting speed, and a new method of control. The later introduction of precious metal contacts made it a further improvement over previous switches.

The motorswitch not only has a drive free from impact, eliminating vibration and isolating one switch from the noise of another, it also has low-resistance contacts which improve the quality of voice transmission. The recent development of the solderless multiple, common to all switches in a vertical rack, has made possible free subdivision of outlets and an extended range of application.

Speed is said to be a dominant trait of the motorswitch—it rotates up to 160 steps per second. This speed is attained by an impactless drive which employs no ratchets, pawls, or stops. Its only force is rotary. When one of the coils is energized the armature is attracted to its core. This movement turns the drive shaft, and as the shaft rotates, the cam operates the motor contacts alternately. As the cam leaves the contact springs associated with one coil, it enters those associated with the other. In this way, a continuous drive is obtained.

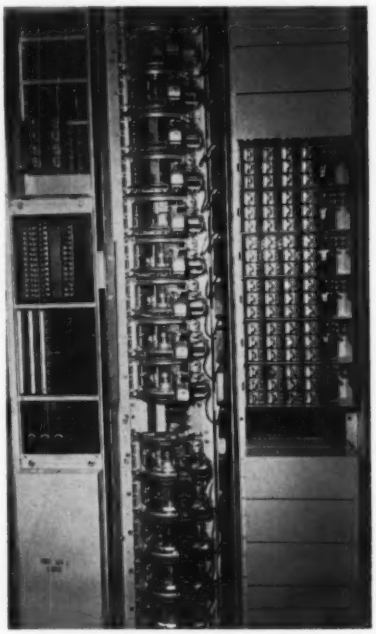


Fig. 10. The motorswitch system.

The motor's rotary force is transmitted to the switching mechanism through a gear train. A quarter revolution of the armature equals one step of the wiper assembly. When the wipers arrive at an idle terminal the control relay energizes both coils at once, stopping the switch without shock. The armature connected to the wiper arms is attracted to the central column. The contact arms for the talking leads are brought into contact with the column and the contact bank with a slight oscillating movement which creates a wiping action on the proper contact. A connection is thus established.

•

Plastic-Jar Storage Batteries. (Fig. 11). Exide has expanded its plastic-

Fig. 9. Transistorized dc Sub-Cycle.

jar line of EWA stationary flat-plate batteries to offer a complete range of capacities for power requirements in telephone, microwave, emergency lighting, rural electrification and in general power service.

With the addition of three new sizes, EWA battery capacities now range upward in 60 ampere-hour increments from 180 to 660 ah (at the eight-hour discharge rate).

Added to the line are 13, 17 and 21-plate single-cell batteries with capacities of 360, 480 and 600 ah respectively. The line now includes two and three-cell batteries with seven plates per cell and single-cell batteries with from nine to 23 plates.

Fig. 11. Plastic-jar storage batteries.

All EWA models feature: (1) Patented corrosion-resistant grid material for long life; (2) a special explosion-control device for safe operation, and (3) shock-absorbent plastic containers with molded ledges from which the elements are permanently suspended.

The grids of the positive plates contain Silvium, an exclusive alloy of silver, lead and other metals. This alloy, said to extend expected battery life, has a high resistance to electrolytic corrosion, protecting against damage caused by overcharging.

The special explosion-control device is a safety feature used on many other Exide stationary batteries for gas venting. It consists of a polystyrene hood, or baffle over the plates, which collects the gases and channels them through a cylinder vent and plastic vent plug. The cylinder vent accommodates a pilot-cell hydrometer.

For convenience in maintenance, electrolyte level lines are marked on all four sides of the jars.

The covers are bonded permanently to the jars for leak-proof construction. Seal nuts and gaskets prevent seepage around the heavy, square terminal posts.

Elements are suspended from ledges molded within the walls of the jars. Molded ribs at the bottom of the jars support the separators and position the negative plates.

The heavy negative plates, as assembled with EWA positives, are designed for balanced plate life and efficient performance.

Ribbed microporous separators and spun-glass Vitrex retainers—both highly resistant to chemical and electrolytic action—insulate the plates.

Uniform, high porosity of the separators permits free passage of electrolyte, assuring delivery of high rates of current at maximum voltage. The retainers hold the active material firmly in place at the grids.

All EWA batteries are supplied either charged and filled with electrolyte or dry-charged.

•

Microwave Equipment. (Fig. 12). New microwave RF equipment designed for duplex, multi-channel, point-to-point communications has been announced by Motorola. The new MR-20 incorporates

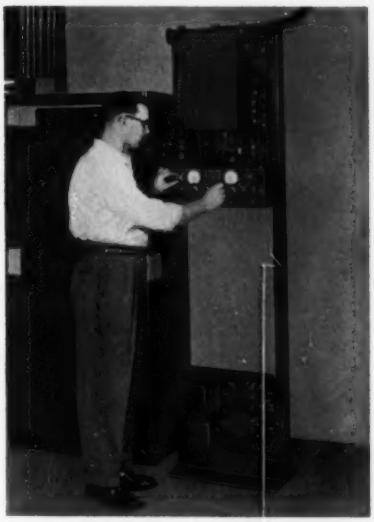


Fig. 12. Microwave equipment.

the advantages of prior Motorola microwave models as well as several refinements that provide greater reliability and simplicity.

Operating in the 6,000-7,000 MC band, this equipment is able to utilize high gain, high directional antennas of reasonable size, permitting reliable operation at conservative transmitter power output.

With major power gain realized in the antenna system, the MR-20 can use low power reflex klystron tubes in the transmitter and receiver. The use of these long-life reflex klystrons permits generation and direct frequency modulation of the microwave carrier in one dependable tube, reducing the number of components needed and adding to the over-all reliability of the equipment.

The wide modulation on bandwidth of the MR-20 permits transmission of a practically unlimited number of channels of information.

Contributing to less outage time are hot standby models which enable the sensing of an equipment fault and switchover to a pre-heated standby unit in less than one second. This switch-over time, plus provisions for bi-lateral switching, make the hot standby arrangement highly desirable for certain applications. Cold standby MR-20 models are also available for those applications where it is desired.

The waveguide of the MR-20 has been simplified so that additional RF channels can be multiplexed to a common antenna.

The MR-20 is also available in frequency diversity models which fulfill requirements for maximum circuit continuity with minimum service interruptions due to propagation outages.

In this system, two simultaneous microwave beams at different frequencies are transmitted. The same information is carried by each beam; the receiver automatically selects the better received signal. In case atmospheric conditions cause fading of the signal on one frequency, continuity of communications is maintained on the second.

The new equipment is provided in the common carrier 5,925-6,425 MC band; the operational fixed 6,575-6,875 MC band and the government 7,125-7,650 MC band.

•

Audio Baton Nine-Channel Tone Control. (Fig. 13). In the field of high fidelity and audio engineering, a need has long been felt for better tone control systems. With present bass and treble control circuits, the effects of increasing the bass or treble generally spill over to the middle range of frequencies. With three-channel control systems, there is some compensation available in the middle frequencies. The use of program equalizers or comb filters is the ideal way to adjust the frequency response, but, in the past, the cost of these was out of reach of the average audiophile.

There is now available a new, low-cost, nine-channel combination filter for

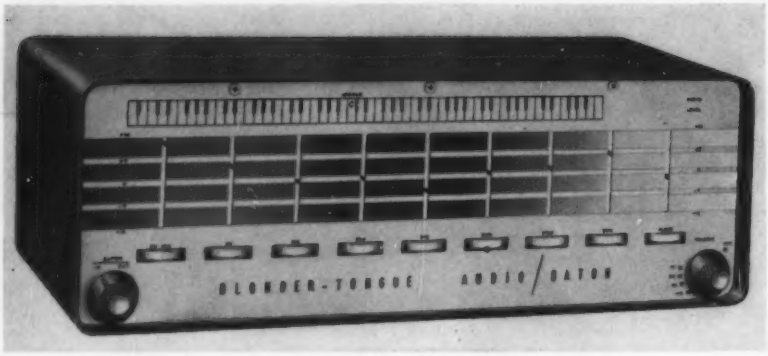


Fig. 13. The Audio Baton nine-channel tone control.

the high fidelity market. The unit, called the Audio Baton by Blonder-Tongue, consists of nine parallel band pass filters, each with variable amplitude control. The audio signal is passed through the filter and mixed in an output stage allowing the user an infinite selection of system frequency responses.

It is said that, because the band pass filters use a low cost design circuit, it has been possible to reduce the cost of this equipment instead of using costlier inductor-capacitor combinations. The filter network uses vacuum tubes with resistor-capacitor combinations to obtain a good band pass characteristic with positive gain. The rate of attenuation is 8 db/octave.

To cover the entire audio spectrum the center frequencies of the filters are preset an octave apart, starting at 40 cps for the extreme lows to 10,240 cps for the extreme highs. With frequency controls 40, 80, 160, 320, 640, 1280, 2560, 5120, 10,240 cps, set to a flat (Odb) position, the Audio Baton is flat from 20 cycles to 20,000 cps. Changing any octave control setting, allows its frequency range to be boosted or cut 14 db, with respect to the rest of the audio signal.

The Audio Baton should operate between a preamplifier and a basic amplifier, with a zero db insertion loss. Thus, the unit introduces into the system a control over the response without a decrease in the available signal or an overload of the output amplifier.

As an example of the use of the Audio Baton, consider a system with a sharp peak response at 160 cycles (i.e., a low cost speaker). By altering the response so that the 80-cycle and 160-cycle network are at full "cut" (—14 db) and boosting the 40 cycle network to +14 db, the speaker can be compensated and made effectively flat to frequencies way below its natural bass resonance. Used in this manner, the Audio Baton can extend the range of the system as a whole, including the speakers.

For the tape enthusiasts who enjoy making their own recordings, the Audio Baton offers another basic use. In editing the preliminary tapes, the Baton can be used to improve passages for the most pleasing sounds. By boosting the range of frequencies in which the soloist is playing, the editor can emphasize and enhance the soloist's contribution to the selection.

Today, the Audio Baton offers a means to adjust for components, speakers, and the living room or auditorium as well.

■

Electronic-Telemetering System. (Fig. 14). A newly developed electronic-telemetering system for measuring the water content of mountain snowpacks is being installed in a remote area of California's rugged Sierra Nevada mountains.

The system was developed by the U. S. Army Corps of Engineers and Sierra Electronic Corp. A similar system is being installed in the Bitterroot mountain range in Idaho.

The unique snow-gauging equipment, based on a radiation detector of the scintillation type, enables engineers to obtain accurate hydrological data (water content of snow) from remote, unattended areas. The new system has created considerable interest among utilities.

According to the Corps of Engineers, millions of dollars can be saved in the design and construction of flood control and water conservation facilities by obtaining frequent and accurate hydrological reports. Until the development of the electronic system, these reports have been difficult and at times impossible to obtain.

In California, for example, water content information is presently obtained by sending men and equipment into the High Sierra each winter to survey selected snow fields. These survey parties are required to travel many hazardous miles on skis or snowshoes and to weigh core samples of snow to determine water content. Often the snow fields are inaccessible because of the severe winter weather.

To supplement and improve upon these sampling methods, the Corps of Engineers devised a gauging system which automatically reports and records hydrological data.

As used in the High Sierra, the system consists of a network of VHF radio antennas and towers constructed at six

(Please turn to page 63)

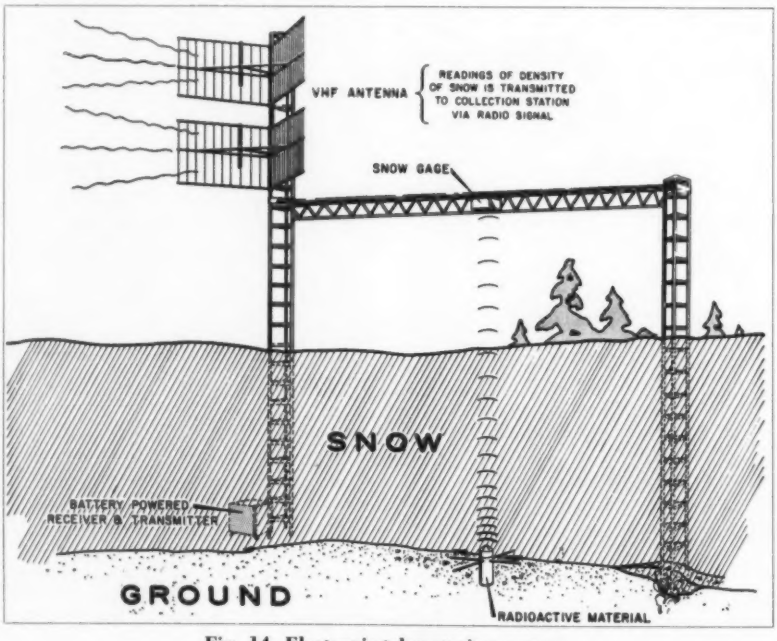


Fig. 14. Electronic-telemetering system.

THE Plant Man's Notebook

BY RAY BLAIN, TECHNICAL EDITORIAL DIRECTOR

WE HAVE RECEIVED an interesting letter from Norman Huddy, chief engineer, telephone service department, Ohio Public Utilities Commission, in which he comments on the article by C. H. Elder, titled: "Considerations of Buried Cable in Urban Areas," printed in TELEPHONY, Dec. 6, 1958. Mr. Huddy states in part:

"I have often considered a type of installation that would combine features of both types of systems, buried cable and aerial. I have made use of this type on a few minor expansions and found it to be inexpensive and economical to maintain. The main cable would be direct-buried and terminals installed on small 20-foot poles located about 18 inches from the cable run. Conventional drop wire would serve subscribers from the terminals. This type of installation eliminates messenger strand, cable lashing, etc.

"Operating telephone companies of today should give serious consideration to the types of cable installations referred to in Mr. Elder's article. Costs at the present time may prove prohibitive, but with continuing rate increases, the time will come, and it may not be too far in the future, when the public will demand that utilities all be placed underground."

•

An article published recently in *Fortune* magazine by Francis Bello, and titled: "Tomorrow's Telephone System," had the following to say about the Bell Laboratories and all-number dialing:

"The Laboratories have realized for a long time that the mixture of letters and numbers on a phone dial is needlessly confusing, and it is especially difficult to find room for both on top of, or beside, a push button.

"What merit there once may have been in using the first two letters of the exchange as part of the complete dialing code has all but vanished as familiar and obvious exchange names have been altered and invented wholesale. Karlin's group has therefore been studying people's reactions to all-numeral dialing.

"Most people dislike the idea at first, but with a little experience they usually dial faster and a little more accurately with all numerals than with the present system."

•

We rode in a radio-equipped taxicab recently. The dispatcher was calling cabs constantly which could be heard from a speaker under the dash. To add to the confusion, there was a transistorized receiver in one corner of the windshield blaring out a broadcast program, commercials and all.

As if all this were not enough distraction, the driver insisted on discussing the weather, politics and what is wrong with this world of ours.

•

We have a letter from H. M. Stewart, general manager of the Standard Telephone Co., Cornelia, Ga., in which he makes the following interesting comment:

"A quotation from the *Dallas Morning News* confirms a favorite contention of mine that a reasonable degree of success is not hard to reach in a small town. There is so little competition, one can make the grade with much less strain.

"I dare say, though, the gentleman would discover it difficult to find a satisfactory suit of clothes, pair of shoes or even a size 15½ white shirt with 35-inch sleeves. In fact, it is the tendency of small communities to remain on a cracker barrel basis that multiplies the problem of bringing to them metropolitan-type telephone service.

"Then, too, there are other problems. Recently, we suffered well over $500 worth of damage to outdoor paystations through vandalism. Two of the paystations, while served out of the same exchange, were located 6 miles apart. The third one was located in another exchange 47 miles distant. In addition to complete destruction of the instruments which represented an investment of around $200 each, considerable damage was done to one of the nice outdoor booths which alone represents around a $500 risk.

"Costly vandalism to our outdoor paystations is not uncommon and takes up a large slice of the revenue derived therefrom. One can easily understand from this experience why more of them are not found in small communities and isolated locations."

Mr. Stewart does not state whether or not the booths vandalized were lighted. We assume though that they were. Lighting provides some degree of protection, but it would appear that an alarm system might prove beneficial in reducing vandalism to isolated paystations, which is a serious problem and a detriment to good telephone service.

•

In California recently, a leak from a gas main caused a blast which demolished a repeater station. The 20-foot-square brick structure was literally atomized by the blast. Its wooden roof was thrown hundreds of feet and landed on the roof of a private home. Fortunately, no one was injured at the home nor at the repeater station, which was unattended.

Despite the intensity of the explosion, only minor damage was done to the complex equipment housed in the repeater station and much of it continued to operate. Complete restoration was effected by 5 p.m. the same day and by 6 p.m. a makeshift shelter of wood, plastic and tarpaper was shielding the equipment from threatening weather.

•

It is claimed that living costs no more than it used to, if you live as people used to.

Working from a ladder truck, epoxy dams are placed at the desired points in aerial cable. The lines are pressurized to prevent moisture condensation and eliminate the need for powdered desiccants. Dams serve as block points to divide the system into sections so that leaks can be isolated and gas can be kept from sections where it is not needed.—Photos, courtesy Minnesota Mining & Mfg. Co.

Forming Gas Dams and Blocks in Telephone Cable

by W. R. Wright*

A SELF-CURING epoxy resin, normally used as a splice insulation, has been adapted to form gas dams and blocks in multi-pair telephone cable by the Western California Telephone Co. at Novato, Cal.

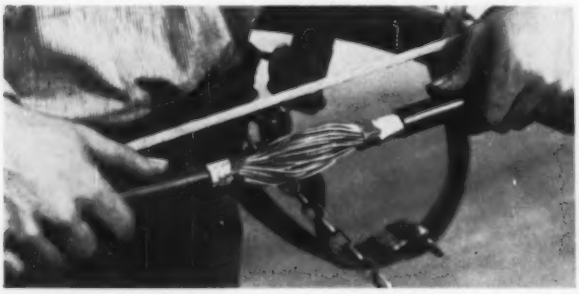
Pressurization of the lines maintained by the San Francisco area Independent company is being carried out on all existing cable, both aerial and underground, as well as all new cable installed.

Placing the existing system of plastic and lead-sheathed cable under pressure to prevent moisture condensation and eliminate the need for powdered desiccants, required a method which was easy to install, to provide a completely gas-tight seal.

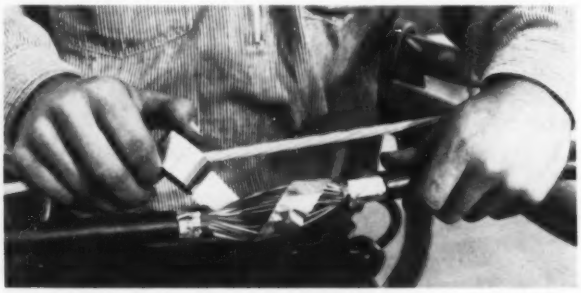
At first, a sponge-like rubber compound was used for sealing the cable at a pre-selected point, but was found to give an inadequate seal and tended to absorb moisture.

Engineers at the Novato exchange then turned to epoxy casting resins because of their superior wetting power,

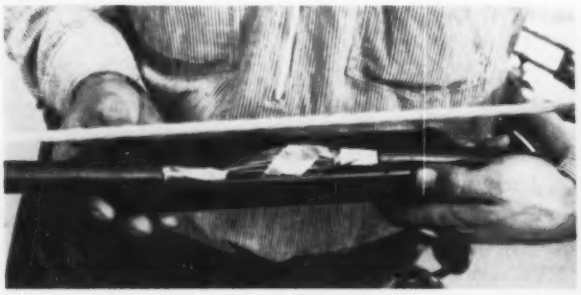
*Mr. Wright is manager of the Novato exchange of the Western California Telephone Co. of Los Gatos, Cal.



After the cable sheath and shielding have been opened, the pairs are bunched up to allow resin to flow between the conductors.



The cable shielding is continued through the dam with pressure-sensitive aluminum tape.



The two-piece resin mold is snapped into place around the cable and spouts are inserted in the holes.

Resin is mixed in "Unipak" container and poured from plastic envelope into spouts (pouring end high to allow bubbles to escape). The resin cures through heat generated by chemical action into solid, waterproof, gas-proof mass.

which allows the resin to penetrate all interstices for a gas-tight seal, and for their insulation value and lack of moisture transmission. A single-use, two-part plastic mold and a mixed-in-the-package, two-part resin were used at the proper point in the cable.

Splicing kits in the "Scotchcast" 82-A series were used to place the resin at the proper sealing point in both lead and plastic-sheathed cable.

First the sheath was opened and the conductors "bunched." Then the shielding ground was continued with one-half-inch pressure-sensitive aluminum tape wound spirally around the bunched conductors.

Next, the two-piece mold was snapped into place around the cable and the pouring spouts inserted in either end. The resin in the "Unipak" container was prepared by breaking the seal between the two halves of the plastic bag and the resin and catalyst mixed together by squeezing alternate ends of the bag 40 or 50 times.

Pressure in the system is controlled by this "Humidistat" unit located in the branch office at Novato, Cal.

When the resin was properly mixed, the corner of the bag was cut off and the resin poured into one of the pouring spouts, taking care to tilt the mold while pouring to allow air to escape from the other spout. Resin was poured until it appeared at the other spout.

The resin used cures under heat generated through chemical action within the resin. Just prior to curing or "kicking-over," it is about the consistency of water, thoroughly wetting everything it touches and penetrating the smallest openings. Once it reaches curing temperature, it hardens immediately and can be placed in service at once.

Pressure in the system is maintained by machinery at the Novato branch office, where special equipment, newly installed, provides the entire system with dehumidified air. Trouble shooting will be simplified by locating the area of a pressure leak at the pressurizing equipment before sending crews out.

Launch Laying of First U. S. to Europe Cable

Deep-sea operations for the first submarine telephone cable system that will link this continent directly to the mainland of Europe got underway on Mar. 15, according to the Long Lines Department of American Telephone & Telegraph Co. (TELEPHONY, Aug. 2, 1958).

(The first transatlantic cable running from Newfoundland to the British Isles, was cut into service on Sept. 25, 1956—TELEPHONY, Oct. 6, 1956. Another Newfoundland-British Isles cable is now planned for completion in 1961 or 62, it was announced recently — TELEPHONY, Mar. 14, p. 74.)

The cableship Monarch was steaming from Great Britain to a point just off Penmarch, France, where she is to begin paying out cable toward the western terminal at Clarenville, Newfoundland. The distance between the two terminals is 2,400 miles.

The twin-cable system will provide at least 36 voice circuits between the U. S. and continental Europe. The new cable will primarily serve France and Germany with some circuits extended to Switzerland, Italy, Belgium, the Netherlands and Spain, and will supplement radio-telephone circuits now serving Europe.

J. A Bowman, general manager of special projects for Long Lines, said the Monarch was scheduled to complete the first laying operation by the first of next month. The end of the cable will be buoyed in mid-ocean while the Monarch returns to Europe for 1,000 more miles of cable, enough to complete the lay to Newfoundland.

Since two cables are needed for the communications system—one for each direction of transmission—the Monarch will load additional cable from the United States in late spring. Then it will proceed to Clarenville and pay out cable toward Penmarch. Another cableship, the Ocean Layer, will complete the second lay in July.

The cable system, to cost about 40 million dollars will be owned jointly by Long Lines, The French Ministry of Posts, Telegraph & Telephones, and the German Federal Ministry of Posts & Telecommunications.

Cable for the project is being manufactured by four companies: Simplex Wire & Cable at Newington, N. H.; Submarine Cables Ltd., at Erith, England; Cables de Lyon at Calais, France; and Felten & Guilleaume, Carlswerk, A. G. at Nordenham, Germany.

The cable system is scheduled for public service in the fall of this year.

Nova Scotia Company Elects New Officers

A. Murray MacKay, president of Maritime Telegraph & Telephone Co., Halifax, Nova Scotia, was appointed chairman of the board of directors, following a recent directors' meeting.

Also at the meeting, J. Ernest Richardson, vice president, was appointed president; and A. Gordon Archibald, general manager, who had priorly been elected a director, was appointed vice president and general manager.

Mr. MacKay joined Maritime in 1912. In 1916, he became general contract agent, rising 13 years later to the post of general commercial manager. He was made general manager in 1934 and was elected a director in 1948. He became president in 1952.

Joining the company in 1946 as secretary and general counsel, Mr. Richardson became general commercial manager in 1956. In 1957, he rose to assistant to the president and, last year, was elected a director and appointed vice president.

The new vice president, Mr. Archibald, joined the company in 1944, becoming general plant manager in 1956. He was appointed general manager in 1958.

Two Children Die in Fire As Party Line Is Tied Up

Two children perished in a trailer fire in Middleton, Pa., on Feb. 26, while their aunt tried to summon aid on a party telephone line which she said was tied up by another user.

The children were identified as Tina Marie Hensel, 3, and her brother, Walter M. Hensel. Fire Chief Donald Ryan said they died when an oil stove exploded in their trailer home.

The children's aunt, Mrs. Robert Porterfield, who lives nearby, tried unsuccessfully to rescue them. She told Chief Ryan she tried to call firemen but that someone on the party line refused to yield it.

Means, Not End

"I wish that I could marshall all the young to an appreciation of the fact that you have an earnest work in life, and your amusements and recreations are only to help you along in that work."—TALMAGE.

Courts and Commissions

Grant 8.35 Per Cent Return To Puerto Rico Company

The Puerto Rico Public Service Commission has granted the Puerto Rico Telephone Co., an affiliate of International Telephone & Telegraph Corp., a rate increase which will give it an 8.35 per cent return on investment, according to an announcement on Mar. 11 by Clyde E. Dickey, company president.

The commission's report stated that this rate of return was a fair one.

Coming on the heels of its 1953-1957 expansion program, which added 30,000 new telephones, the company plans to spend an estimated 52 million dollars on a new construction program which is designed to more than double its present telephone plant by the end of 1963. It currently has 67,000 telephones in service, 75 per cent of which are automatic.

"A master plan for the expansion and improvement of telephone service will be put into effect immediately throughout most of Puerto Rico," Mr. Dickey said. The program, he added, will provide the people of Puerto Rico with one of the most modern automatic telephone communications systems in the world.

Ia. Company Brings Suit To Clarify Franchise

Judge Harold V. Levis took under advisement on Mar. 3, a lawsuit to determine whether the Soap Creek Telephone Co. acquired a perpetual franchise to operate in the town of Moravia, Ia. The case was heard in district court at Centerville, Ia.

The company brought the suit against the town to clarify its legal status before beginning an improvement program.

Soap Creek Co., owned by Mr. and Mrs. Russell Day of Ottumwa, purchased the Moravia Telephone Co. several months ago from Russell Hughes. The Days plan to make it part of a system that includes the Blakesburg-Munterville-Ash Grove area.

The company contends it has a perpetual franchise because the Moravia exchange was in existence prior to Oct. 1, 1897—a date after which granting of franchises by public balloting was established by the Iowa Legislature.

Attorneys for the town of Moravia have resisted the claim. There is divided opinion in Moravia concerning the improvement plans, which include replacement of the manual switchboard with dial equipment.

Ancient documents and records were produced in court by both the plaintiff and defendant to support their claims.

Tex. Independent Sues Over City Franchise Withdrawal

The Gulf States Telephone Co., Tyler, Tex., is reported to have filed a suit in Dallas District Court against the city of Seagoville seeking enforcement of a franchise the company claims it has with the city.

Gulf States, according to a Mar. 8 report, alleges the city granted it a 37-year franchise and then tried to reverse its ruling. The company also asks in the suit that it be awarded damages resulting from the city's failure to carry out the contract.

Ill. Independent's Rate Raise Reversed by Court

The circuit court of Stephenson County, Ill., recently set aside and reversed the Feb. 18, 1958 order of the Illinois Commerce Commission granting a $236,177 rate increase to the Northwestern Telephone Co., Freeport (TELEPHONY, May 24, 1958).

The increase would have given the company a 5.35 per cent return on property valued at $4,575,000.

It was appealed to the court by 16 towns and 2 county boards.

Two Illinois Independents Given Sale Approval

The Illinois Commerce Commission recently granted two sale approvals.

Ashley Telephone & Telegraph Co. was authorized to sell to the Okaw Commercial Telephone Co., Okawville. The Ashley exchange adjoins the territory now served by the Okaw company.

Seymour Telephone Co. was allowed to sell its property to the Champaign County Telephone Co., Champaign (TELEPHONY, Nov. 8).

Holds Must Reimburse For All Relocation Costs in Neb.

The Nebraska attorney general on Jan. 30 ruled that utilities must be reimbursed for all costs of required relocations of facilities because of construction of the interstate highway, when such relocations are non-betterment, and not in conflict with agreements with the state, counties or municipalities. The ruling was requested by the Nebraska Department of Roads.

The question posed in the ruling was as follows:

"Under the provisions of Section 39-1304.02, R. S. Supp., 1957, where facilities located upon highway right of way are required to be moved through the construction of the 'interstate highway' and when the facilities moved include besides the portion that had been located within the right of way, portions outside of highway right of way, or where because a direct crossing is impractical it is necessary to extend in length for some distance the utility facility, are all of such costs reimbursable?"

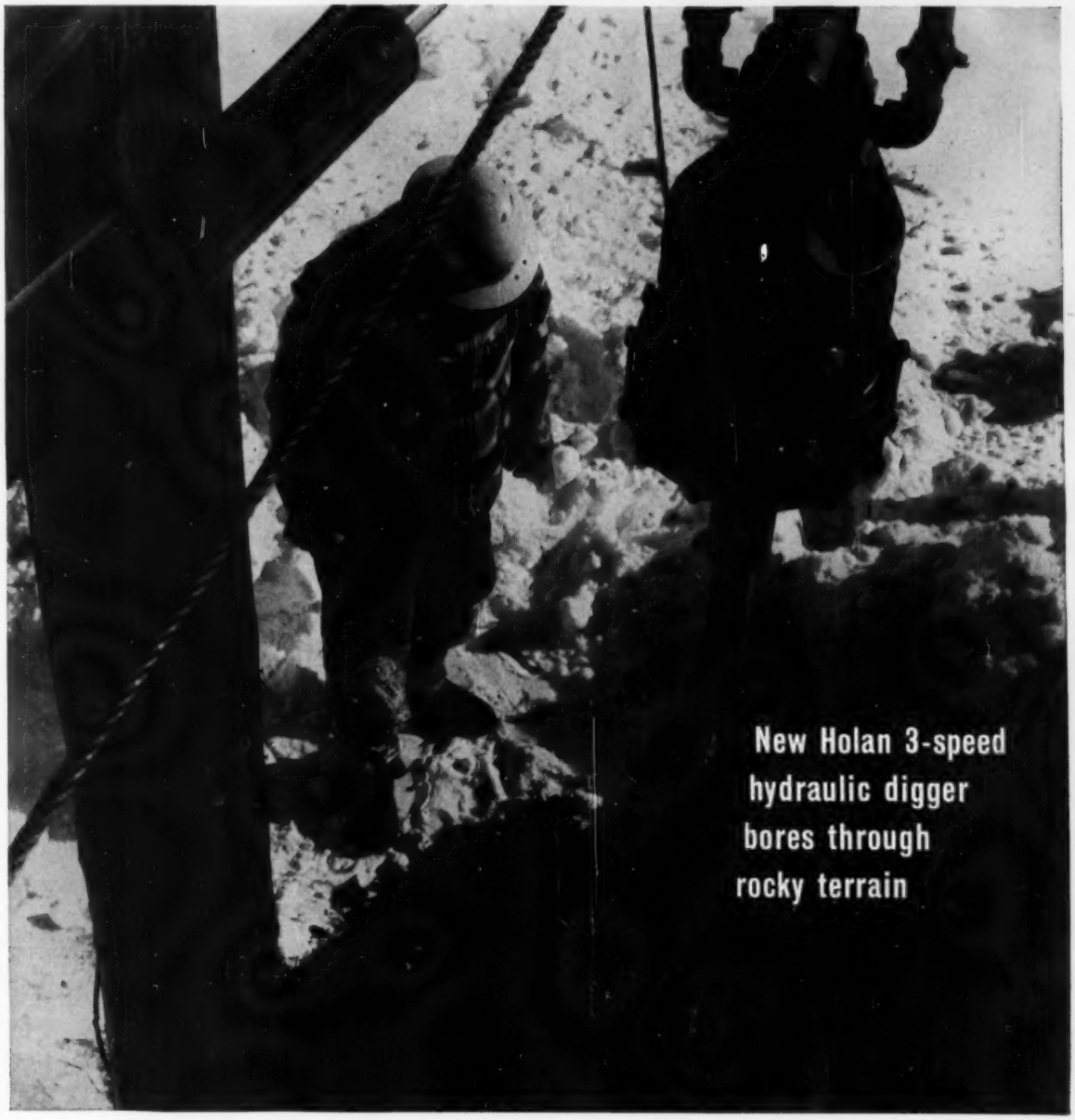
The attorney general ruled that utilities are entitled to reimbursement in such cases both under the statutes and the state constitution.

The ruling in part is as follows:

"The question undoubtedly arises because Section 39-1304.02, R. S. Supp., 1957, provides for utility reimbursement of a facility 'required to be altered, changed, moved or relocated for the construction of any project qualifying for aid as an interstate and defense highway or urban extension thereof' under the Federal Aid Highway Act of 1956, whenever the facility 'now is, or hereafter may be, located *in, over, along or under* any highway.'

"Except for the use of the words for which we have supplied emphasis, the wording of the entire section is plain and must be construed therefore without resorting to rules of construction. It clearly provides that the utility must receive reimbursement of the cost of such move or relocation, (provided) that the reimbursement must be for non-betterment costs and provided also that such reimbursement does not violate a legal contract between the utility and the state, or a county, city or village of the state, where by express terms the utility has assumed such costs.

(Please turn to page 32)



Torque: 8,400 ft.-lbs.

There's a new kind of hydraulic digger in the field—a digger with greater auger torque than any other derrick-suspended borer in use today.

The Holan 3-speed Series 5400 Digger handles augers up to 30 inches in diameter, and provides 8,400 ft.-lbs. torque. In addition to the high torque speed for big augers and tough digging, there's a faster speed for normal digging and augers 16 inches or less. A third speed is for spinning dirt and mud off the auger blades.

A positioning cylinder assures straight holes, aligns the auger for digging anchor holes and provides more clearance while setting poles. The swivel-mounted digger swings any way the operator desires. One man controls the unit from the rear of the truck.

To learn more about what the Series 5400 does—and how it works, call or write us.

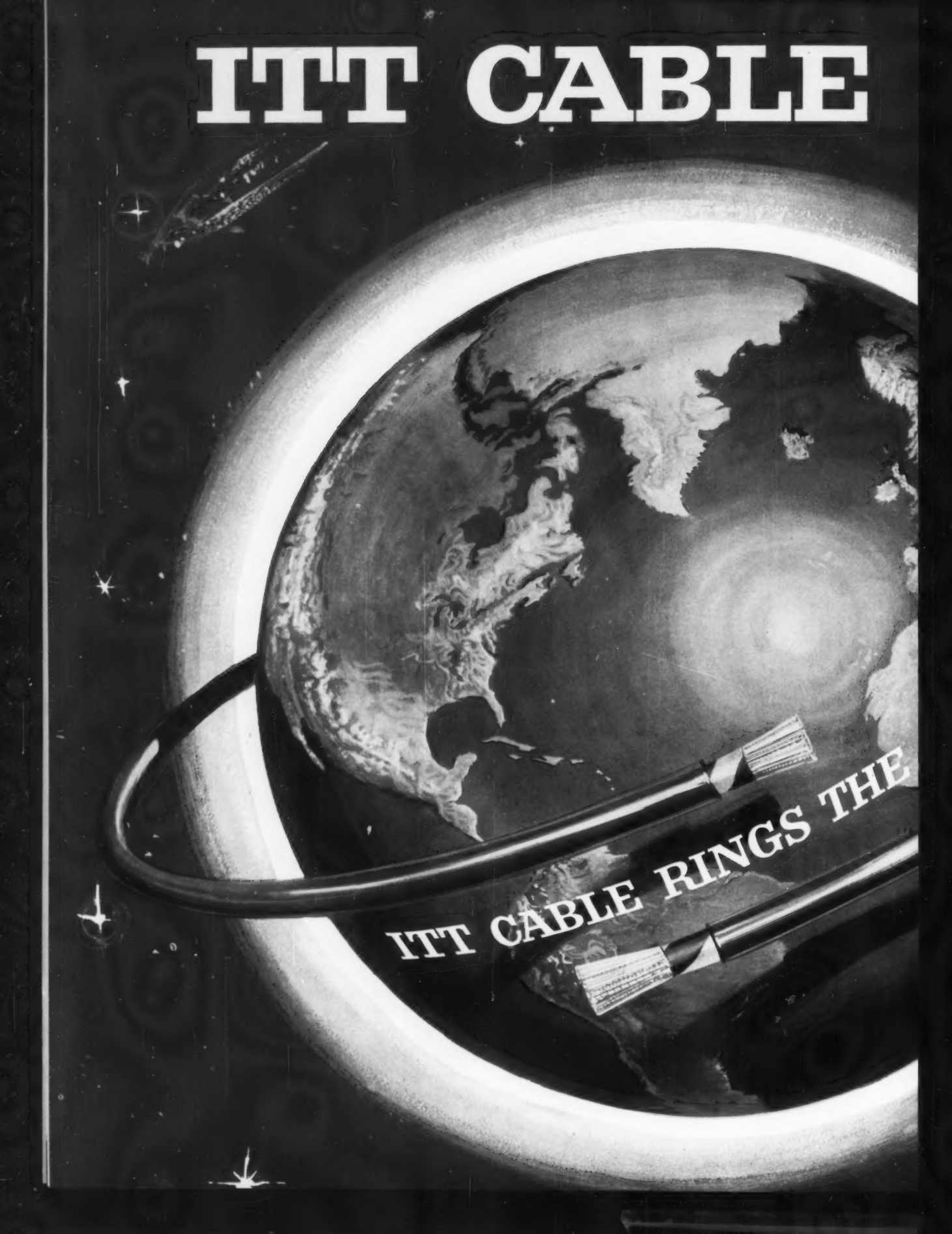
Holan Corporation, 4100 West 150th Street, Cleveland 35, Ohio

Plants in: Cleveland, Ohio; Griffin, Georgia; Phoenix, Arizona

Holan

Subsidiary of THE OHIO BRASS COMPANY

HOLAN


ITT CABLE
ITT CABLE RINGS THE

Exceeds all standards!

ITT Cable, long in use throughout the United States, is available to all independent telephone companies.

ITT Cable exceeds every exacting standard of telephony, it features unit and layer construction. The copper conductor and paper insulation is furnished by the largest U. S. supplier of these commodities. ITT Cable (aerial or direct burial) is available in all gauges—19, 22, 24 and 26. All reels are disposable to eliminate additional costs involved in returns.

Backed by both Kellogg and the world-wide facilities of International Telephone and Telegraph Corporation, you will find this cable exceeds the high standards of modern communications.

Ask your Kellogg Regional Office for a comparison of technical specifications against your present supplier of cable.

8 billion conductor feet in USE in U.S.A.

SERVING THE LARGEST SINGLE TELEPHONE SYSTEM!

Basic Specifications	26 AWG	24 AWG	22 AWG	19 AWG
Sheath: lead with 1% antimony				
Conductor: pure copper wire				
Conductor Resistance max. ohms/mile @ 20° C	230	145	92	46
Mutual Capacitance 900 cycles A.C., mfd/mile, max.	0.080	0.080	0.090	0.084
Capacitance Unbalance 900 cycles A.C., micro-microfarads	*	*	at 22 AWG: up to 1000′—100; 1001′ to 2000′—150; 2001′ and longer—200 at 19 AWG: up to 1000′—100; 1001′ to 2000′—150; 2001′ and longer—200	
Dielectric Strength: 60 cycles A.C., for 2 sec., volts rms				
conductor-to- conductor-to- sheath	355	355	355	500
core-to- sheath	850	1000	1000	1000

Insulation Resistance: not less than 1,000 megohm-miles at 60°F measured with a D.C. potential of 100 to 550 volts.

*not required, except if adjacent pairs are found with like lengths of twist when the 900 cycle A.C. capacitance unbalance shall not exceed 400 micro-microfarads.

Licensed under patents of American Telephone and Telegraph Company and Western Electric Company, Incorporated

KELLOGG Communications Division of **ITT**

Kellogg Switchboard and Supply Company, 6650 South Cicero Avenue, Chicago 38, Illinois
Communications Division of International Telephone and Telegraph Corporation.

Regional Offices and Warehouses: †
CALIFORNIA: 23 Broderick Road, Burlingame, Calif., OXford 7-5780.
GEORGIA: 1594 Southland Circle, N.W., Atlanta 18, Ga., SYcamore 4-2441.
ILLINOIS: 4600 So. Tripp Ave., Chicago 32, Illinois, CLiffside 4-4300.
KANSAS: 7th & Sunshine Road, Kansas City 15, Kansas, MAyfair 1-4418.
MINNESOTA: 6100 Excelsior Blvd., Minneapolis 16, Minn., West 9-6715.
NEW YORK: 327 North West Street, Syracuse, N. Y., HArrison 2-9251.
OHIO: 1555 West Fourth Street, Mansfield, Ohio, LAfayette 4-6511.
TEXAS: 1515 Turtle Creek Blvd., Dallas 7, Texas, RIverside 7-5191.
EXPORT: 157 Prospect Street, Passaic, N. J., PRescott 3-5100.

† *Major inventories are maintained at four strategic warehouses in New York, Chicago, Kansas City (Kan.), and Burlingame, Calif., to guarantee ready access and prompt delivery.*

"It is assumed the question doubts the rights of the utility to be reimbursed where a portion of the facility might be construed as not being located in, over, along or under any highway. If such was the case, the utility would clearly be entitled to reimbursement, without need of statutory authority, under the provisions of Section 21, Article I of the Constitution of Nebraska which provides: 'The property of no person shall be taken or damaged for public use without just compensation therefor.'

"The result then is that reimbursement must be made either under the express wording of Section 39-1304.02 or under the constitutional mandate."

OK Sales, Raise in Neb.; Ask Increase, Loan, EAS

The Nebraska Railway Commission on Mar. 12 approved the sale of the Glenwood Telephone Co., Blue Hill; the Lawrence Telephone Co.; and the Kearney County Independent Telephone Co., Norman; to the Glenwood Telephone Membership Co., Blue Hill. New rates providing for uniformity between exchanges were also allowed.

The commission set a Mar. 26 hearing date on the application of the Clarks Telephone Co., Ulysses, to raise rates and to enter into an extended area service agreement with the Staplehurst Telephone Co. The Clarks company also seeks to borrow funds and to mortgage its property.

Two Companies in Ill. Granted Rate Increases

The Cass County Telephone & Telegraph Co., Virginia, on Mar. 6 was granted a rate increase by the Illinois Commerce Commission (TELEPHONY, Nov. 15). The increase will amount to $4,939. Along with the raise, the company was required by the commission to increase wages for operators.

•

The commission also, on Feb. 20, authorized the Easton Telephone Co. to increase rates by $1,600 a year (TELEPHONY, Feb. 14).

Ask Bell Sale in Ark.; Seek Stock Approval

The Arkansas Public Service Commission on Mar. 9 was scheduled to hear the application of the Hindsville Telephone Co. to sell its facilities to the Southwestern Bell Telephone Co.

On the same day, the commission was to have heard the application of the General Telephone Co. of the Southwest to sell 300,000 shares of stock at $20 per share.

Allow Rate Raise in Neb.

A rate increase for the Dalton Telephone Co. was approved on Mar. 5 by the Nebraska Railway Commission (TELEPHONY, Feb. 14). The increase for the company's 313 subscribers is designed to produce an additional $4,157 in annual gross revenue.

Ten retiring employes of Orange County Telephone Co., Middletown, N. Y., were recently honored at a testimonial dinner. Also present were retired employes, who were introduced by Vice President Frank D. Fancher. Charles C. Chappell, company president, paid tribute to the service of those retiring and presented certificates and gifts. Seven of the honorees are (seated, left to right): Lester W. King, CDO maintenance, 40 years service; Miss Agnes V. Rowell, general auditor, with 55 years; Miss Julia M. Diehl, general traffic supervisor, 50 years; and Edward R. Davenport, equipment manager, 52 years. Standing with Mr. Fancher (second from left) and Mr. Chappell (second from right) are Frank A. Carey, installer-trouble-shooter, 40 years; Mahlon H. Tyrell, custodian of plant records, 46 years; and Charles G. Roescher, building custodian, 19 years. Unable to be present because of illness were: Alvin Budd, cable splicer, 35 years; Harry Terwilliger, plant superintendent, 36 years; and Fred R. Yaeger, purchasing agent, 47 years service.

Study Penalties in N. C. For Threatening Callers

The House judiciary committee of the North Carolina legislature was urged on Mar. 12 to pass a bill which would provide a fine or jail sentence for those who threaten violence while hiding behind a cloak of secrecy at the other end of a telephone line.

It was pointed out that there is no law now on the books in North Carolina to cover such offenses and that an Aberdeen, N. C. businessman recently died of a heart attack after repeated telephone calls from an unidentified man who threatened "You're going to die tonight."

The bill, introduced by Rep. H. Clifton Blue, was backed by the Sandhill Telephone Co., which serves the Aberdeen area, and by others.

The committee, with Representative Blue's approval removed a clause in the bill which also would have punished those making obscene calls. It was noted that such calls now may be punished under federal statutes.

The committee referred the revised bill to a subcommittee for further study.

Rate Increase Authorized For Wisconsin Company

The Wisconsin Public Service Commission on Feb. 27 granted the rate increase asked by the Citizens Telephone Cooperative, Inc., New Auburn (TELEPHONY, Jan. 24).

Approved rates for New Auburn and Canton exchanges are:

Rural business, multi-party	$5.50
Rural residence, multi-party	4.70
One-party business	9.00
Two-party business	8.00
Four-party business	6.50
One-party residence	5.50
Two-party residence	4.75
Four-party residence	4.30

General of Southwest Says Stock Will Be Offered

General Telephone Co. of the Southwest, San Angelo, Tex., plans to offer publicly 250,000 shares of $20 cumulative preferred stock. The 5-million-dollar proposal has been submitted to the Securities & Exchange Commission.

The company told the SEC that the issue will be offered at par through Paine, Webber, Jackson & Curtis of New York City and Mitchum, Jones & Templeton of Los Angeles.

The preferred stock, with dividends cumulative from Apr. 1, 1959, payable

NOMINAL WEIGHTS OF FINISHED WEATHER-RESISTANT WIRE AND CABLE

(Pounds per 1000 Feet)

Conductor Size AWG or Mcm	Copper & Copper Alloy Conductors: URC Type Double Braid	URC Type Triple Braid	Neoprene Type	Polyethylene Type	Aluminum Conductors: Neoprene Type	Polyethylene Type
Stranded						
2	246	270	248	**230**	105	**87.4**
4	155	170	163	**143**	73.3	**53.3**
6	103	115	108	**91.5**	51.5	**35.0**
Solid						
2	239	260	232	**219**	92.2	**79.2**
4	151	164	152	**136**	64.0	**48.0**
6	100	112	101	**87**	45.7	**31.7**

Sources: American Standards Association Specifications

This table shows

POLYETHYLENE covered line wire weighs less

Because it's the lightest, polyethylene-covered line wire is the easiest for linemen to string up . . . hardest for ice and snow loading, gale-force winds to bring down.

Polyethylene-covered line wire, depending on size and conductor, weighs from 5% to 32% less than other types. That's what the figures in the specifications tabulated above show.

This, of course, is no news to linemen who have strung all types of weatherproof line wire. They may not be able to quote pounds and percentages, but they all know you can't beat polyethylene on weight.

Linemen's Favorite Material

Light weight means easy handling, one of the main reasons polyethylene rates tops with installation crews. They also like polyethylene wire because it's clean . . . free-stripping . . . has a smooth, self-lubricating surface that almost makes pulling a pleasure. And despite the exterior slip, the plastic covering hugs the conductor tightly, doesn't ruffle as it goes over crossarms.

"Built-in" Safety Factor

Polyethylene's lightness provides lasting mechanical advantages, since span loads don't tax supports as much as heavier type wire. This "built-in" weight safety factor pays off when violent storms push aerial construction to strain limits . . . when ice and snow loads topple heavier lines.

An added factor in polyethylene wire's ability to stay up under adverse conditions is its smaller diameter. It offers less resistance to wind, a smaller surface for ice build-up.

Winning Combination

Called the "closest to the ideal covering for line wire," polyethylene is outstanding in other respects too. The shield it forms over wire is continuous . . . tough . . . resistant to aging, weathering, moisture, abrasion by lashing branches. It's good for decades of superior service marked by fewer outages, minimum maintenance.

When you order covered wire and cable, make sure the coating is made with PETROTHENE® polyethylene resins. PETROTHENE polyethylene costs no more, but it gives you premium weather and stress-crack resistance.

Polyethylene's advantages are outlined in an informative new U.S.I. data sheet, "Polyethylene . . . The Best Line Wire Covering." Also available is a data sheet showing properties, applications and specifications of PETROTHENE polyethylene compounds. Send for your copies today.

U. S. Industrial Chemicals Co.
Division of National Distillers and Chemical Corp.
99 Park Ave., New York 16, N. Y.

Please send me:
- ☐ "Polyethylene . . . The Best Line Wire Covering"
- ☐ "PETROTHENE Resins for the Wire and Cable Industry"

Name:_____ Title:_____

Company:_____

Address:_____

City:_____ State:_____

U.S.I. INDUSTRIAL CHEMICALS CO.
Division of National Distillers and Chemical Corp.
99 Park Ave., New York, 16, N. Y.
Branches in principal cities

July 1, Oct. 1, Jan. 1 and Apr. 1 in each year, will be redeemable at the option of the company at $22 a share plus accrued dividends.

General of the Southwest plans to use proceeds of the stock sale to repay $3,810,000 of bank loans for past construction and for future construction programs.

The company envisions a $11,360,000 construction program this year which, it says, will require new capital of about $5,630,000, to be obtained initially through bank loans.

Gross construction totaled approximately $11,200,000 in 1958.

N. C. Independent Gets OK To Sell Stock for Expansion

The Lexington Telephone Co. on Mar. 12 was authorized by the North Carolina Utilities Commission to sell 1,000 shares of $100 par preferred stock to raise funds for expansion and improvement (TELEPHONY, Mar. 7).

In its application, the company said its capital investment between January 1945 and last Dec. 31 increased from $211,942 to $2,213,948 and that, during the same period, the number of telephones it operates increased from 1,660 to 7,251.

Emergency Party Line Use Bill Introduced in Illinois

Two Illinois Senators, Fred J. Hart and Hayes Robertson, recently introduced a bill into the state's legislature which would make failure to yield a telephone line in an emergency a misdemeanor and subject to fines of $100 to $800 and imprisonment for 90 days.

Under the bill it would also be illegal, and punishable by a fine of $25 to $100, to ask for use of a party telephone line on the pretext that an emergency existed.

Third-place award winner in the seventh annual local outdoor advertising contest, held nationwide by the Outdoor Advertising Association of America, was the entry of Pacific Telephone & Telegraph Co. A jury composed of prominent advertising agency executives and art directors, meeting in Chicago last month, chose the entry, which is classified as a "painted bulletin."

Introduce Franchise Bill To Reverse N. C. Ruling

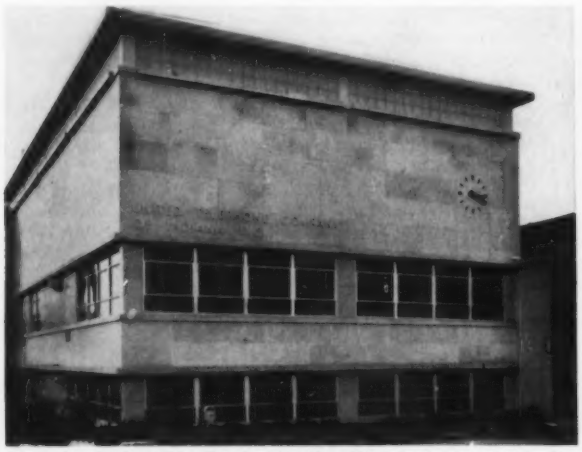
A bill has been introduced in the North Carolina Legislature which would validate franchise agreements previously made between telephone companies and municipalities and would spell out a plan for such agreements in the future.

The measure is designed to overturn a ruling of the North Carolina Utilities Commission in a recent Carolina Telephone & Telegraph Co. rate case (TELEPHONY, Feb. 21). The ruling declared illegal, franchise agreements under which many eastern North Carolina cities have been getting free telephone service or rate concessions.

The ruling brought protests from a number of municipalities which asked the commission for a rehearing and now have taken the matter to the courts after the commission remained firm in its stand.

The franchise bill was introduced by

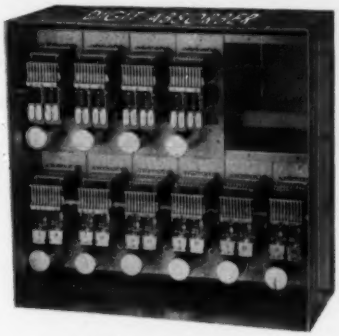
(Please turn to page 38)



Open house on Feb. 26, at the Franklin exchange (left photo) of United Telephone Co. of Indiana brought together nearly 100 guests, including Hugh Barnhart of Rochester, Ind., president of the United States Independent Telephone Association, and men of the telephone industry throughout the central states. The Franklin exchange was marking its conversion to XY dial and Direct Distance Dialing service for its more than 7,000 subscribers. RIGHT PHOTO (left to right): W. J. Pfaender of Chicago; Mr. Barnhart (partly obscured behind him: Ralph Coplen of Warsaw); J. D. Bristow, also of Warsaw; Arthur Brubaker of Rochester, Ind.; Charles Jessup, Franklin district manager, and R. E. Daniel (back to camera), United of Indiana chief engineer. Franklin, which was one of the first Indiana Independent exchanges to offer nationwide DDD to its subscribers, expects toll usage to spiral. "Shortly after the conversion, a single day's DDD calls were metered at 723, or more than one DDD call for every 10 subscriber stations," reports Forrest Eherenman, general commercial supervisor.

INVESTIGATE UNIVERSAL DIGIT ABSORBER*

FOR CONVERTING EXISTING SWITCHBOARDS INTO FULL 2-5 NUMBERING



Digit absorber case requires 17" on a 19" relay rack. Capacity 12 units.

Other ***UNIVERSAL*** Equipment:

COMPUTER INTERCEPT
Code-to-Selective RINGING CONVERTER
TRUNK DIGIT REGISTER

DIRECT DISTANCE DIALING REQUIRES A 2-5 CODE

Few dial switchboards of earlier design have provisions for adding digit absorbing features economically. The Universal Digit Absorber fills this need easily and at nominal cost. Installation requires very little time and does not interrupt service.

The ever-increasing requirements of Extended Scope Dialing on a universal numbering arrangement are easily handled by the Universal Digit Absorber. The Digit Absorber is a factory assembled, fully-wired, applique unit that can be connected to any existing dial switchboard to pad in three digits of exchange code (ABX) or four digits in the case of a three digit dial board.

There are two types of Universal Digit Absorbers, depending on the complexity of the exchange codes assigned:

19-S unit will handle exchange codes, as illustrated by AB-X, where the "X" digit is not a duplicate of the "A" or "B" digit.

19-L unit is required where the "X" digit is a repeat of either the "A" or "B" digit.

In addition, Universal offers a Trunk Digit Register which can be applied to "Trunk on Line" dial boards where five or more digits are required to be delivered to a 3 or a 4 digit tributary exchange. This unit also affords added link hunting time and safeguards against partial digit registration.

* Pat. Pend.

FOR FULL PARTICULARS
PLEASE WRITE DIRECT TO
UNIVERSAL
OR CONSULT YOUR DISTRIBUTOR
FOR DETAILS

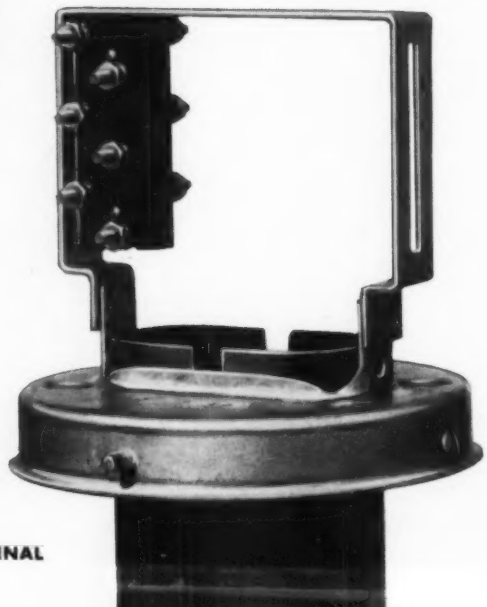
UNIVERSAL
CONTROLS CORPORATION
OFFICE AND PLANT – CARROLLTON, TEXAS
MAIL ADDRESS – P. O. BOX 13122, DALLAS 20, TEXAS
Telephones: Carrollton 3885 — Dallas CH 7-3123

ON ORDERS DIRECT TO **UNIVERSAL**, BILLING WILL BE THRU YOUR PREFERRED DISTRIBUTOR.

DS ALPETH

ARMORED UNDERGROUND DISTRIBUTING WIRE

AE offers you CABLE AND for your direct



TERMINAL

Automatic's 6 friendly warehouses:

Northlake, Illinois
Fillmore 5-7111

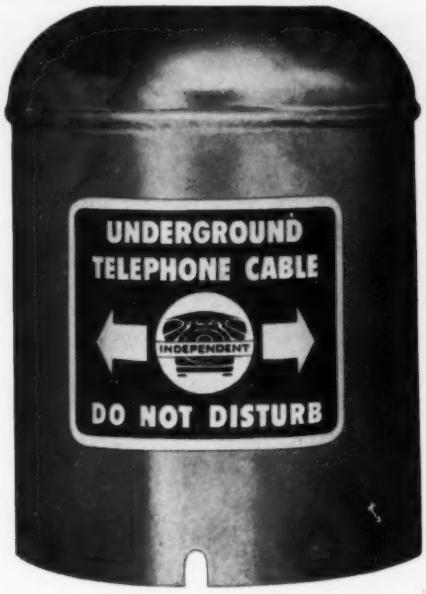
2915 Moore St.
Richmond 21, Va.
ELgin 8-9280

2360 N. W. Quimby St.
Portland 10, Ore.
CApitol 3-7244

150 Carlisa Avenue
Johnson City, N. Y.
SWarthmore 7-8507

2021 Main St.
Kansas City 8, Mo.
HArrison 1-7575

TERMINAL HOOD



TERMINALS
burial installations!

DS ALPETH by General Cable handles easily, installs quickly! This double-polyethylene-sheath plastic insulated cable gives you extra mechanical protection. Available with aluminum or copper shielding. Ideal for direct burial installation. Manufactured in conductor sizes 26, 24, 22 and 19 AWG. Cables range from 6 to 400 pairs.

ALPHADUCT ARMORED UNDERGROUND DISTRIBUTING WIRE is available with rubber insulation and neoprene jacket or polyethylene insulation and jacket. Both types have flat steel ribbons wrapped around the insulated conductors. Polyethylene construction offers economy where conditions do not require the extra-rugged protection of rubber-neoprene.

TERMINALS provide accessibility to all cable pairs for testing, splicing, loading, protection, cross connecting and buried wire distribution. All-steel construction protects cable. Adaptable to pole mounting as well as underground installation. Your AE representative will be glad to give you further details.

AE has all the supplies for your needs. You always get *prompt delivery* from a *large stock* of *famous brands*. Next time you need direct burial supplies, give us a call. We'll roll up our sleeves to prove that—at AE, you get all 3.

AUTOMATIC ELECTRIC

Subsidiary of **GENERAL TELEPHONE**

NEW,

IMPROVED DESIGN!

Extended mounting slot now fits ALL standard 12" or 8" pin spacings . . . eliminates costly re-boring.

Case® ALUMINUM CROSS-ARM TRANSPOSITION BRACKETS.

Many new carrier circuit designs call for a reduction in wire spacing from 12" to 8". Normally this means thousands of new pin holes must be bored . . . an expensive and time-consuming job. Now . . . the new, improved Case cross-arm transposition bracket with the extended mounting slot fits all standard 12" or 8" pin spacings . . . eliminates the need for costly re-boring, and saves you thousands of dollars per year. If you are planning to re-space and transpose wires from 12" to 8" spacings, be sure to check first with Case.

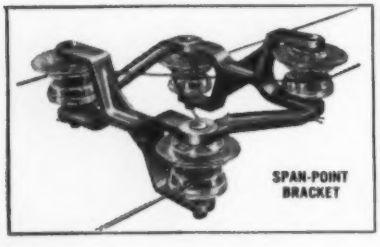
SOLD BY LEADING DISTRIBUTORS IN THE U. S.

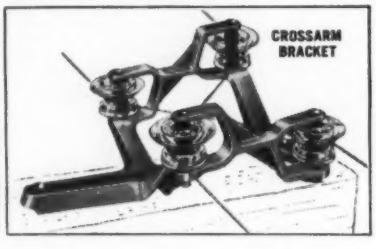
CASE BRACKETS . . . STRONG, LONG-LASTING, ECONOMICAL, ESPECIALLY ADAPTED FOR CARRIER-CIRCUIT CONSTRUCTION

Write today for free illustrated brochure.

TRANSANDEAN ASSOCIATES, INC.

305 MAIN STREET, ORANGE, NEW JERSEY





Rep. Tom Woodward of Wilson, the first city to protest the commission's decision and, which is appealing to the courts.

The bill provides that future telephone franchise agreements "shall be made in accord with a uniform plan prepared by the company and approved by the commission." The plan "shall be designed to insure that discrimination will not exist between the municipalities served by the telephone company and the commission shall determine whether or not the plan presented is discriminatory."

The measure also would permit the commission to change an agreement upon a petition by either the company or the municipality if the commission finds it to be discriminatory.

The commission in its ruling found that free or reduced-rate service under franchise agreements amounts to a franchise tax, prohibited by law, and discriminatory against other subscribers. The municipalities contend it was in exchange for rights-of-way along city streets.

Authorize Increases for Two Wisconsin Companies

The Wisconsin Public Service Commission on Feb. 20, authorized the Rhinelander Telephone Co. to increase rates a total of $29,352 (TELEPHONY, Nov. 15).

Paul R. Parsons, general manager of the company, said the last increase in rates at Rhinelander was on Jan. 1, 1957. The new increases become effective on Mar. 1, and the $29,352 increase granted was the exact amount the company sought.

According to the general manager, approximately $17,000 of the authorized increase will be used for federal, state, city and town taxes, leaving $12,352 for the company.

Mr. Parsons said this amount was needed because of higher wage scales, pension costs and social security. It was also sought as a return on the new capital additions to the plant.

Old and new rates are:

	Old	*New*
Urban business:		
One-party	$10.00	$11.25
Two-party	8.00	9.00
Urban residence:		
One-party	5.65	6.10
Two-party	4.65	5.10
Four-party	3.65	4.10
Rural business:		
Four-party	6.50	7.35
Eight-party	5.50	6.10
Rural residence:		
Eight-party	3.90	4.35

The increase, according to Mr. Par-

(Please turn to page 42)

Specify Philco Microwave for unequalled reliability in Telephone Communications

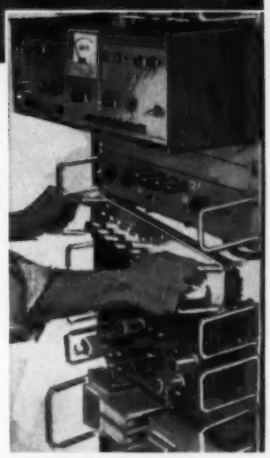
Featuring the revolutionary CLR-9 duplex terminal, with wideband composite signal, Philco Microwave Systems insure highly dependable, unattended, point-to-point communications for voice and teletype . . . plus high speed data transmission.

The CLR-9, which operates in the 6000 mc to 8000 mc wavebands, consists of a highly stable, FM, reflex klystron transmitter and a low-noise superheterodyne receiver. Continuous operation is assured by the automatic switching to the integrated standby which is kept in continuous operation with the primary unit.

The unitized construction of the CLR-9 provides the utmost in flexibility and ease of maintenance through plug-in printed wiring chassis. In addition, metering and test circuits are built in and centrally located on the control panel.

For reliable, economical, maintenance-free microwave communications . . . specify Philco. *Government and Industrial Division, 4700 Wissahickon Avenue, Philadelphia 44, Pennsylvania. In Canada: Philco Corporation of Canada Limited, Don Mills, Ontario.*

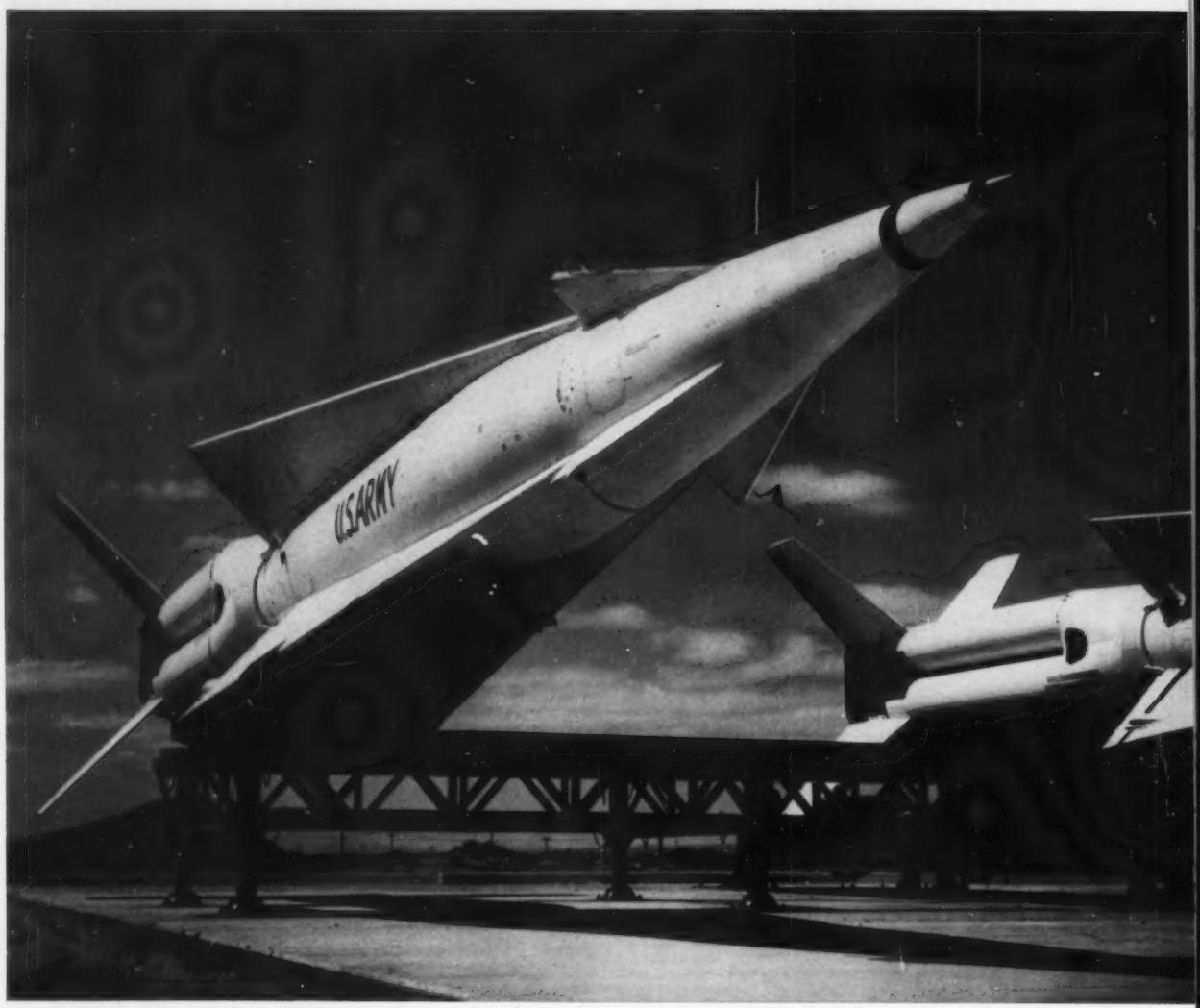
- Plug-in Printed Wiring Chassis
- Expandable—Wide Bandwidth Suitable for Computer Control and Data Transmission
- Convection Cooled Klystrons—No Blowers
- Built-in Metering and Test Circuits—in a Single Test Panel
- Compatible with all Multiplex Equipment
- 240 Voice Channels



PLUG-IN PRINTED WIRING CHASSIS —are replaced quickly, providing utmost ease of maintenance; printed wiring panels give increased circuit stability.

PHILCO QUALITY FIRST!

WESTERN ELECTRIC AND



NEW NIKE guided missile, the U.S. Army's Nike Hercules, is now going into service alongside the earlier Ajax at Nike sites near key U.S. cities. Guidance equipment for Nike systems is made at W.E.'s North Carolina plants.

THE MEN of Western Electric's Field Engineering Force instruct and advise the Armed Forces on W.E.-made equipment that helps direct guns, bombs and missiles for the Army, Navy and Air Force.

DEW LINE of radar stations, built by W.E. for the Air Force in 32 months, is now being extended across the Aleutians. Hundreds of Bell System people bucked the Arctic to help build it.

NATIONAL DEFENSE

From the DEW Line in the Arctic to the Nike Systems here at home, Western Electric's telephone experience has been put to work in the nation's defense.

Telephone work may seem a far cry from the building of the DEW Line or production of the Nike guided missile systems. Yet, Western Electric was asked to handle these and other important defense assignments precisely because of the special capabilities it developed as manufacturing and supply unit of the Bell Telephone System.

Our being asked to produce the Nike and Terrier guidance systems—plus radar systems for guns, bombs, planes and ships—stems from Western Electric's experience as a manufacturer of telephone communications equipment. Because of the close integration of our efforts with those of Bell Laboratories and the Bell operating telephone companies, we've developed an ability to turn ideas swiftly and smoothly into working realities.

Our being asked to build the DEW Line and provide management services for SAGE – gargantuan problems in logistics – becomes understandable in light of Western Electric's supply job for the Bell System: marshalling men and materials, coordinating the activities of thousands of suppliers, to provide the things needed for telephone service.

In short, Western Electric's experience in handling vast projects of great technical complexity – plus its ability to bridge the gap between research and operation—presents a ready-made package of know-how useful to the government.

We are glad that our Bell telephone work has so equipped Western Electric to serve the nation's defense.

Western Electric

MANUFACTURING AND SUPPLY UNIT OF THE BELL SYSTEM

TERRIER. As prime contractor for the ground guidance equipment of the Marines' Terrier – a mobile guided missile system – Western Electric helps provide anti-aircraft protection on beachheads.

DOLLAR-A-YEAR JOB. At the request of the Atomic Energy Commission, Western Electric manages the Sandia Laboratories in Albuquerque, New Mexico. Mission: to help bridge the gap between research and production of complex atomic weapons.

SAGE NERVE CENTER. Western Electric is responsible for management services during the building of the Air Force's vital SAGE project, which is making the nation's air defense semi-automatic.

NATIONWIDE TEAM of 5,900 companies, part of W.E.'s supplier force of 37,000, helps with defense work. Among them Douglas Aircraft, maker of Nike air frame.

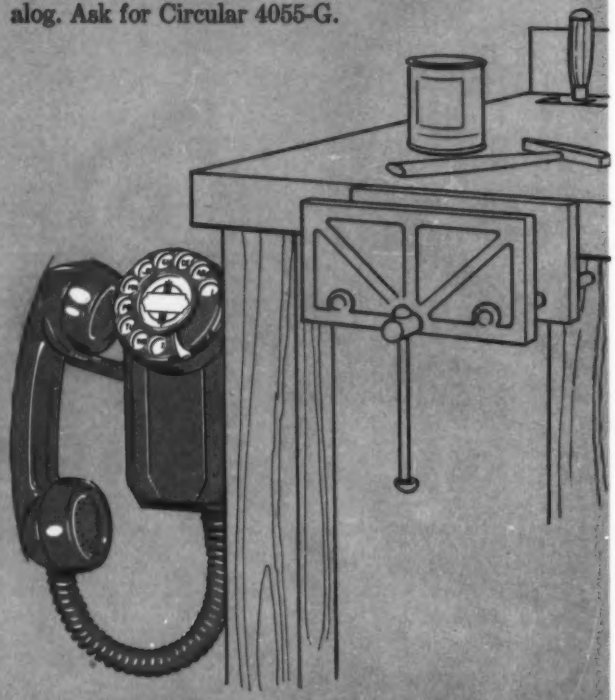
TYPE 83 COMPACT TELEPHONE

Mounts on Any Vertical Surface!

Automatic's Type 83 Compact Telephone mounts on *any* vertical surface—wall, column, side of desk, etc. Saves valuable working space on desk and table tops. Requires only 7" x 3¼" for mounting.

Type 83 Telephones give your subscribers famous Type 80 transmission. And, you don't have to worry about stocking special parts—this phone uses standard components! There's a choice of 10 beautiful colors, too: Gardenia White, Camellia Pink, Forget-Me-Not Blue, Sand Beige, Garnet Red, Jade Green, Classic Ivory, Dawn Grey, Sunlight Yellow and Turquoise.

For complete information on all Automatic Electric telephones, write for our new Telephone Catalog. Ask for Circular 4055-G.



AUTOMATIC ELECTRIC
NORTHLAKE, ILLINOIS
Subsidiary of GENERAL TELEPHONE

sons, is expected to include $8,172 from urban business customers; $14,160 from urban residence customers; $1,188 from rural business; $4,765 from rural residence subscribers; and $1,068 from extension telephones.

•

The Commission on Feb. 20, also permitted the Big Elk Telephone Co. to increase subscriber rates.

Both Houses Pass N. Mex. Relocation Payment Bill

A bill allowing the state of New Mexico to reimburse public utilities for moving their facilities to make way for highway construction was passed on Mar. 11 by both houses and sent to the governor for signature.

It eliminates state responsibility for moving utility lines for primary system road construction, which is the most expensive.

The federal government pays 92.8 per cent of the cost of building the interstate highways to which the new law would apply.

This bill is similar to one passed in 1957 which was later declared unconstitutional by the New Mexico Supreme Court (TELEPHONY, Nov. 29). The prior bill was held unconstitutional because it violated the ban against public payments of benefit to private interests.

The 1957 measure, according to M. E. Noble of the Southern Union Gas Co., provided that states be reimbursed in federal funds for non-betterment relocation costs in the same proportions that federal funds were paid to the states for highway improvement.

Mr. Noble said that in the new law, there is no reimbursement if the utility has placed its facilities on the highway under a statute or a written contract requiring the utility to relocate at its cost. It also does not allow reimbursement on secondary roads.

It contains only about a fourth of the 1957 law, according to State Sen. Earl Hartley.

State Sen. Tibo J. Chavez estimated relocation costs would cost the highway commission about 2 million dollars.

Ask Raise, Bond OK in Ind.

Garrett Telephone Co. on Feb. 24 asked the Indiana Public Service Commission for permission to raise rates. The company also asked authority to sell bonds. Money will be used for conversion to automatic operation.

Two Ask Raises in Wis.

The Wisconsin Public Service Commission was to have heard the requests of Midway Telephone Co. and Preston Telephone Co. for rate increases on Mar. 17 and 18 respectively.

Ohio Association Elects C. C. Bloom a Director

The election of Coyne C. Bloom, general manager of the Sycamore Telephone Co. to the board of directors of the Ohio Independent Telephone Association was announced on Mar. 10 by R. J. Maxwell, association president.

Mr. Bloom, who is also treasurer and plant engineer of the Sycamore company, succeeds the late Gustav Hirsch of Columbus.

Soon after his graduation from the Bliss Electrical School of Washington, D. C., in 1928, Mr. Bloom became associated with the Ohio Power Co., where he was employed for over 20 years.

In 1945, he joined the Sycamore company as secretary and treasurer.

Obituary

LESTER B. MAPEL, 77, former area manager of the Lincoln (Nebr.) Telephone & Telegraph Co. at Seward, Nebr., died on Mar. 8 in Long Beach, Cal., after an extended illness. His home was at Brea, Cal.

Mr. Mapel joined LT&T in 1912 as an installer at Lincoln. He later served as manager at Waverly, solicitor-collector at Lincoln and manager at Utica before moving to Seward as manager in 1920. He became area manager at Seward in 1934, and retired in 1942.

He is survived by his wife, Helen, one daughter, Mrs. William E. Sandusky of Seward, and three grandchildren.

Mr. Mapel was a charter member of the Frank H. Woods chapter of the Independent Telephone Pioneer Association.

Ask Transfer in Wyoming

William A. and Delia Lamb, owners of the Dubois Telephone Exchange, have asked the Wyoming Public Service Commission to transfer their telephone facilities and operating rights to the Dubois Telephone Exchange, a newly organized corporation. The corporation will issue 50 shares of $100 par capital stock to the Lambs.

Seek Bond Approval in O.

The Ohio Central Telephone Co., Wooster, has asked the Ohio Public Utilities Commission for authority to issue 1.3 million dollars in first mortgage bonds at private sale, it was reported on Feb. 26.

Kappel Gets Award

Frederick R. Kappel, president of American Telephone & Telegraph Co., received the Economic Club of New York's gold medal award for management at a dinner on Mar. 9.

The High Tensile Wire with BUILT IN Safety Factor

Crapo HTL-135

COMPARE THE PHYSICAL VALUES!

Diameter (inches)	.109
Breaking Strength (pounds)	
Rated (minimum)	1213
Average of actual tests	1350
Fatigue Endurance Strength	
In Pounds	466
In % of Ultimate Tensile Strength	35%
Elongation in 10 inches	4 to 8%

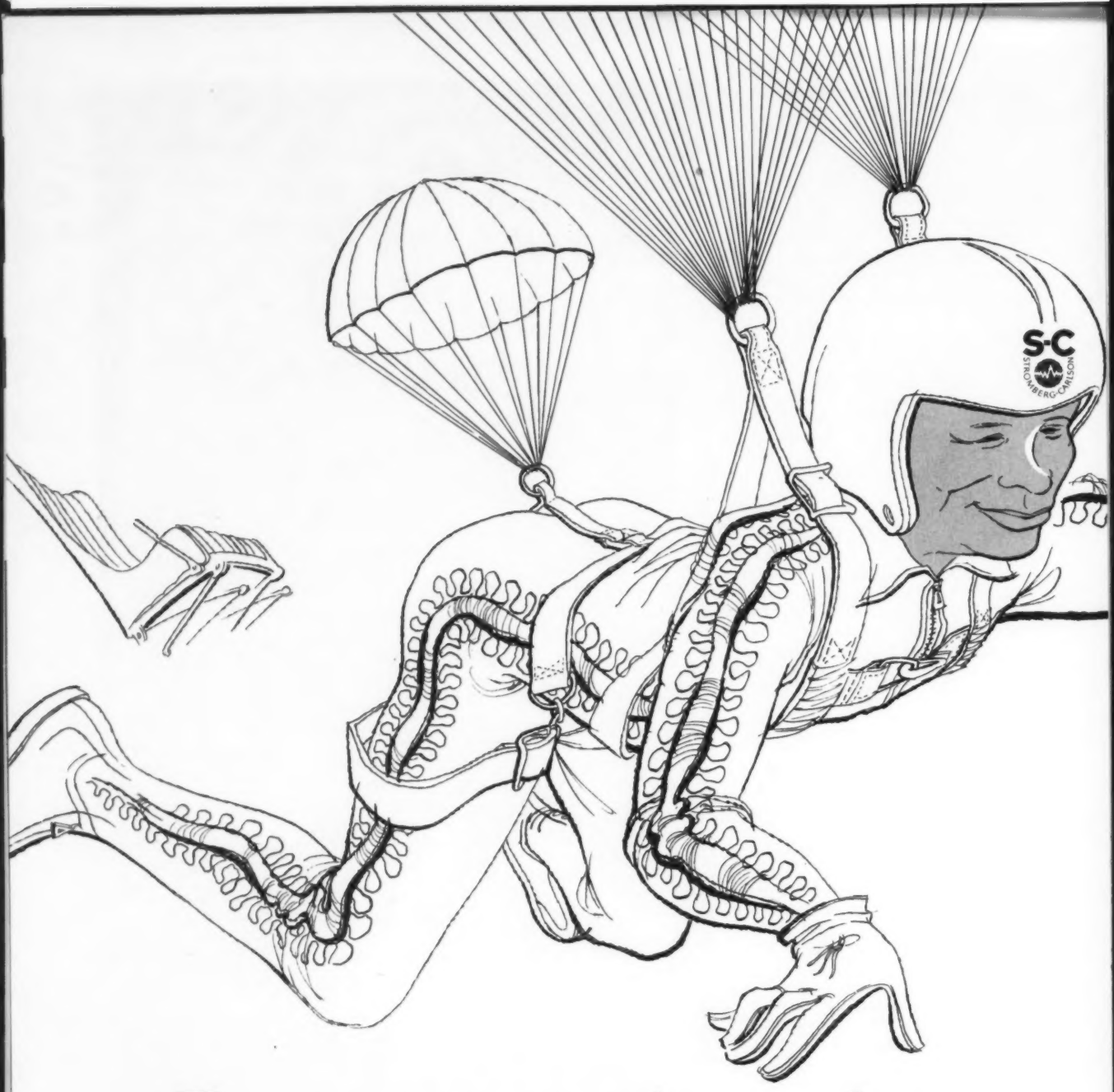
By every rule of sound engineering practice, *Crapo* HTL-135 High Tensile Telephone Wire has proved to be the most dependable and economical conductor available for long-span rural lines.

Recommended sags and tensions for this rugged, high strength wire are based on accurately determined stress strain characteristics and on maintaining loads specified by the National Electric Safety Code. Initial unloaded tensions at the lowest temperature expected never exceed the fatigue endurance limit of the wire.

Crapo HTL-135 makes possible spans to 350 feet in Heavy Loading, 540 feet in Medium Loading and 650 feet and over in Light Loading Districts with a proven margin of safety.

Electrically, *Crapo* HTL-135 provides more than ample conductivity for typical subscriber lines in rural areas. Loops of 14 to 15 miles are practical with normal voltages and equipment. Longer loops are possible where higher voltages and more sensitive telephone sets are employed. This wire also is being used successfully with subscriber carrier current installations.

For low initial cost, low maintenance cost and all 'round reliability, insist upon the strength and high fatigue endurance characteristics provided by *Crapo* HTL-135! Write for Manual N-53 containing complete engineering data!



Even your routine orders get

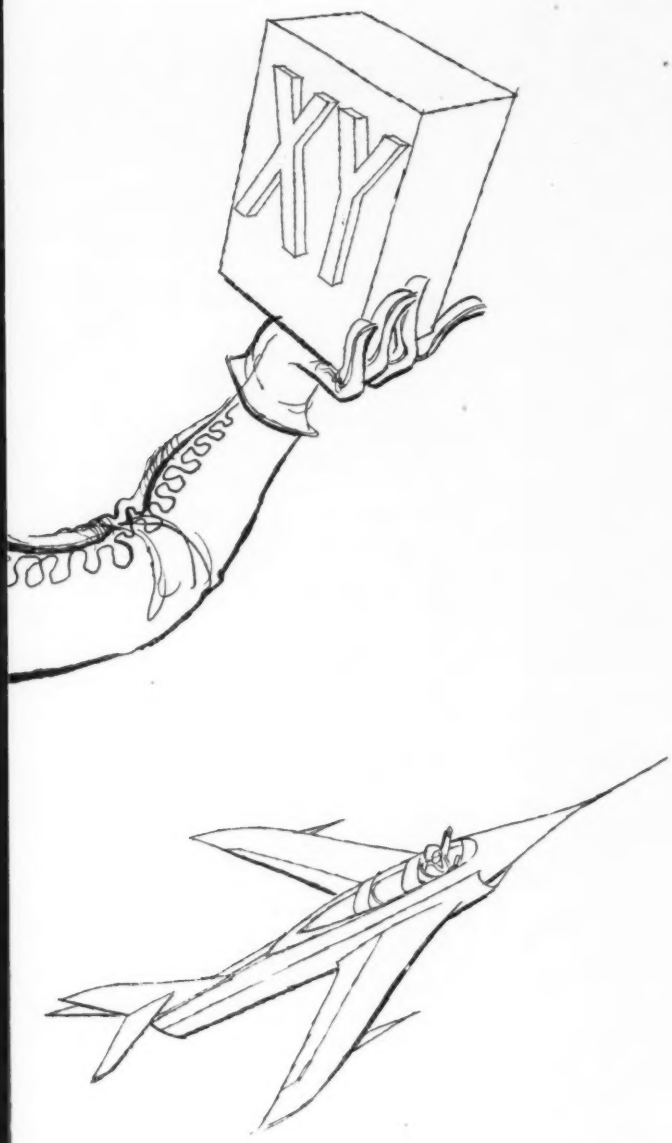
No matter who you are, where you are or what the size of your order may be—to us you're a V.I.P., and we really appreciate your patronage.

Your *rush* orders naturally get extra-special handling. But even routine requests for construction or maintenance supplies get fast, personalized attention. We can do this because of the way we've set up our supply organization. *Objective: the best possible service to you.*

Our sales offices and warehouses are in the five most strategic locations in the country. Result: you get excellent delivery no matter where you are. We oper-

STROMBERG-CARLSON A DIVISION OF GENERAL DYNAMICS CORPORATION

ATLANTA: TRinity 5-7467 • **CHICAGO:** STate 2-4235 • **KANSAS CITY:** HArrison 1-6618 • **ROCHESTER:** HUbbard 2-2200 • **SAN FRANCISCO:** OXford 7-3630



special attention!

ate just the *right number* of branches to serve you *efficiently*—not so many that the distribution system itself becomes unwieldy.

Next time you need construction or maintenance supplies, phone, wire or write your nearest Stromberg-Carlson office. You'll really get service.

C. J. Reynolds, National Supply Sales Manager.

S-C | GD

IN THE NATION'S CAPITAL

Continued from page 18

procedure because past results have been disappointing," the Michigan Bell spokesman said.

William M. Day, president of Michigan Bell, said if the increase is approved, his organization then will seek specific changes in local and long distance rates to comply with the commission's finding. "Positive action by the commission to bring about a marked improvement in the financial health of Michigan Bell will be more than repaid in better service to our customers and in benefits to the economy of the state," Day said.

Day declared Michigan Bell rates since 1940 have risen only a third as much as "the price of most other things people buy. If other prices had gone up 'no more than ours,' inflation would not be the problem that it is today," he said. "We are a victim of rather than a contributor to inflation."

Michigan Bell's average return in three years has been 5.6 per cent on its investment. Day compared this with the average for the 50 largest manufacturing companies which he figured at a return of 13.2 per cent.

"While Michigan Bell does not seek profits equal to those of a manufacturing company," Day said, "the discrepancy is too great and wholly without justification, since the company must compete with all others for capital to finance expansions."

Accelerated Depreciation

Melwood W. Van Scoyoc, former FPC staff official, has urged the California commission to fix rates so as to require utilities in that state to ask for and pass along so-called benefits of accelerated depreciation for income tax purposes. Mr. Van Scoyoc, who recently successfully urged the same regulatory policy on the Maine commission, suggested that the California utilities could be persuaded to elect to take the accelerated depreciation method of computing their taxes, if their operating expenses were regulated on the assumed basis that they had made such a tax election, and had passed the "difference" on to the ratepayers.

In other words, Mr. Van Scoyoc, who is apparently making widespread appearances before state regulatory commissions on this matter, takes the position that public utilities should be treated differently from all other business taxpayers. Accelerated depreciation is a take-it-or-leave-it proposition for all other taxpayers. But, this expert witness seemingly feels that public utilities should either take the tempo-

TYPE 82 DIAL-LIGHTED TELEPHONE

You See the Dial in the Dark!

With Automatic's new Type 82 Dial-Lighted Telephone, your subscriber can actually dial in the dark! Letters, numbers and finger-holes on the dial are lighted. An added convenience for which your subscriber will gladly pay extra.

Now your subscriber can make calls in darkness or twilight without groping for the right finger holes. And, when the phone rings at night, the light leads him right to it. Users tell us that the Type 82 is a handy directional guide in a dark room, too.

The Type 82 Telephone has all the famous Type 80 features—plus a lighted dial! And, it's available in any of our 10 attractive colors. Ask your Automatic representative about the Dial-Lighted Telephone. He'll be glad to give you all the details.

AUTOMATIC ELECTRIC
NORTHLAKE, ILLINOIS
Subsidiary of GENERAL TELEPHONE

rary advantage of this tax method, while getting no temporary corporate benefit from it, or actually pay the temporary difference in tax payments (between accelerated depreciation and any other method) out of the company's earnings after expenses.

When your correspondent mentioned this idea, (in this department several weeks ago), that accelerated depreciation "savings" should be passed along to the ratepayers, through adjustments in the rate levels, he received a vigorous protest from one regular reader of this department. He is Frank Shufflebarger, chief accountant of Northeastern Telephone Corp., London, Ky. Mr. Shufflebarger states his view about "passing along" so-called tax savings in the following language:

"I will take issue with this idea because it is not a tax saving and is only a deferred tax liability. It is true that, in the first few years, public utilities will have an apparent tax 'saving,' but in the later years the depreciation gained will be much less than by using the straight line method.

"If we use an assumed plant depreciable base of $100,000 at the rate of 10 per cent per year we will find that the straight line method of depreciation will exceed the accelerated method by approximately $10,500 over the earlier years.

"Then, we can see, over the subsequent years of the 10-year period, where there is actually a tax loss instead of a gain by using the accelerated method of depreciation.

"The accelerated rate of depreciation was intended as a tax 'saving' for the first few years to enable the taxpayer to expand his business.

"If the utilities are required to pass on to the consumer the tax 'saved' in the first few years, I believe that the consumer, in all fairness, should be charged, through expenses, for the tax loss in the latter years.

"Most utilities, using accelerated depreciation for the tax purposes, would record this tax liability for the future years by a credit to provision for deferred income taxes."

Foreign Cable Merger

The Senate Interstate Commerce Committee this week (Mar. 19 and 20) was holding hearings on a bill to amend the Federal Communications Act so as to permit the merger of American companies providing cable and radio-telegraph service in international communications. This may sound more important than it really is, although the bill has stirred up enough opposition in the past to block enactment last year.

All this bill does is to permit American telegraph and cable interests abroad to exercise the same prerogatives of consolidation, merger and sale which Congress authorized some years ago for the telegraph companies in the important domestic field of communi-

cations. It will be recalled that, at that time, Western Union Telegraph Co. and the old Postal Telegraph Co. had a long, hard fight to convince Congress that there was only enough telegraph business for one continental system and that there were even some doubts about that. Subsequent events, including the merger of the telegraph carriers, approved by the Federal Communications Commission, have shown the economic necessity of such a policy of consolidation.

There is even less justification for wasteful duplication of facilities by a number of American international communication interests in the foreign field, especially when they have to buck the strong competition of foreign government subsidiaries which enjoy monopolistic advantages in their own operating service area.

The hearings announced by Chairman Magnuson (D., Wash.) were to start with witnesses from the FCC, Justice Department, Defense Department, and the State Department. Private companies were scheduled to testify during the hearings to be called after the Easter recess of Congress. Senator Magnuson is the sponsor of the permissive legislation which is the same as the bill he introduced in the last session of Congress. He said, however, that recent technological changes and developments in telecommunications have had a deep effect on the competitive nature of various companies in international telegraph service so as to require new legislation. He stressed, however, that the bill is permissive. The companies do not have to merge if they do not want to. And, even if they want to, they will still have to justify their arrangements in proceedings before the FCC, which would have to approve any deal before it could take effect.

Plenty of Excise Tax Bills

If Congress fails to do anything about repealing or curtailing the 10 per cent excise tax on telephone bills and toll calls it won't be for lack of legislation introduced. This observer cannot recall when so many bills on the same subject found their way into the congressional hopper. This seems to be a new technique of promoting legislative action, and it will be interesting to see how it works.

In recent years, some of the various blocs and groups in Congress have followed a somewhat contrary strategy of getting all the representatives or senators known to favor a certain piece of legislation to gang up on a *single* bill, by letting their names be included under the title as "co-sponsors." It must be admitted that it made a very impressive showing when a bill, for ex-

TYPE 86 KEY TELEPHONE

Saves time and steps around the office!

Key telephone service gives your subscriber access to all office lines—*at one desk!* No more racing around the office to answer phones. Instead, he lifts the handset of his key telephone, presses a button and the call is connected. He holds outside lines while using another line, too. Your subscriber saves time and steps—gets more work done!

The Type 86 Key Telephone gives your subscriber a complete communications package. It's used with the Automatic Electric 10-A1 Key System—or W.E. 1A and 1A1 Systems.

Type 86 Telephones accent any office decor. They're available in 10 attractive colors. Use Type 86 Telephones to boost your revenue. Write for full ordering information.

AUTOMATIC ELECTRIC

NORTHLAKE, ILLINOIS

Subsidiary of GENERAL TELEPHONE

KELLOGG

VOLUNTEER-FIRE-CALL

"gets them on the job quicker"

The installation of a Kellogg ten-line fire reporting system in Star City and another in Buffalo, Indiana central offices, has led Mr. Otho Price, Fire Chief at Buffalo, to report, *"We get more of our firemen on each call, and we get them on the job quicker with the new dial fire alarm system . . ."*

This is typical of community results with the Kellogg Volunteer Fire Call System. Also, it's easily installed. To quote Mr. James D. O'Connor, manager of The Pulaski-White Rural Telephone Co-Operative, Inc., "Since this system uses the regular subscriber phone, we need not install extra phones or occupy needed cable pairs with fire lines . . . it is the answer to the problem facing small communities in regard to fire reporting after conversion to dial."

Your Kellogg sales representative will be glad to explain the many advantages of this system for your community.

KELLOGG Communications Division of ITT
CHICAGO, ILLINOIS

Kellogg Switchboard and Supply Company, 6650 South Cicero Avenue
Chicago 38, Ill. Communications division of
International Telephone and Telegraph Corporation

For complete list of offices see pages 30-31

ample, to build a certain federal hydroelectric dam was introduced with the names of 20 senators as joint authors of the measure. But, such a show of preliminary strength did not seem to make much of an impression where it counted—which was on the other congressmen whose names were *not* on the bill. It was pretty soon recognized that bills introduced with the fanfare of multiple authorship had probably assembled pretty nearly all the strength they could muster on the first showing. After that they had a tendency to peter out. Thus, there has been a bill to create a Columbia Valley Authority in every Congress for more than a decade, with a number of senators' names on the front page; but that seems to be as far as they got in Congress.

So maybe the new strategy of having the more articulate friends of federal telephone excise tax repeal introduce supporting bills will be more effective. It might conceivably have a cumulative effect, although at the moment the outlook is not reassuring. Chairman Wilbur Mills (D., Ark.) recently declared that he could not see any tax rate reduction in the picture for 1959 in view of the pressure for economic stability and holding the line on deficit financing, if not an actually balanced budget.

But, there are special arguments, as readers of these pages are well aware, in favor of telephone excise tax repeal. So maybe these legislative seeds —over 50 of them, the last time this reporter looked — will blossom in the forthcoming spring. There is always a chance that they may even bring forth fruit in the present Congress. Although not necessarily this year, nor necessarily in the form of outright tax repeal. Even a congressional declaration of a future termination date on telephone excise taxes — something that would not cost anything for the present time in the form of tax revenues— would be a long forward step in the future interest of the telephone subscriber in the United States.

The sponsorship of these tax repeal bills is quite bipartisan. The Democrats (30) lead the Republicans (17) by more than their margin of majority strength in Congress (approximately 3 to 2). This may be due to the fact that the Democrats in the present Congress hail more from the city districts, where the telephone tax is most unpopular. This was also borne out by the geographical location of the 19 states from which the sponsors of the telephone tax repeal bills come. Most of the bills call for outright repeal and about half a dozen would cut the tax in half. There were only two which would impose a termination date. But, this is the type of measure to watch closely, because it

stands a better actual chance of getting loose on the floor.

One of the barriers to early consideration of such legislation is the fact that tax bills are constitutionally required to originate in the House. And if the House Ways and Means Committee and the House Rules Committee sit tight on all forms of tax reduction, there would not be much hope for outright repeal.

But, there is a very good chance for a termination date bill in connection with a measure which is likely to come out of the Senate Finance Committee. That is a bill for the extension of certain corporate income and excise tax rates which would otherwise expire next spring. If such a bill could include, by amendment or otherwise, a termination date on telephone excise taxes, a very good start would be made, indeed.

Phalen Succeeds McHugh as President of N. Y. Telephone

Directors of the New York Telephone Co. on Mar. 12 elected Clifton W. Phalen president, effective May 1, 1959, succeeding Keith S. McHugh, who has accepted appointment by Governor

C. W. PHALEN

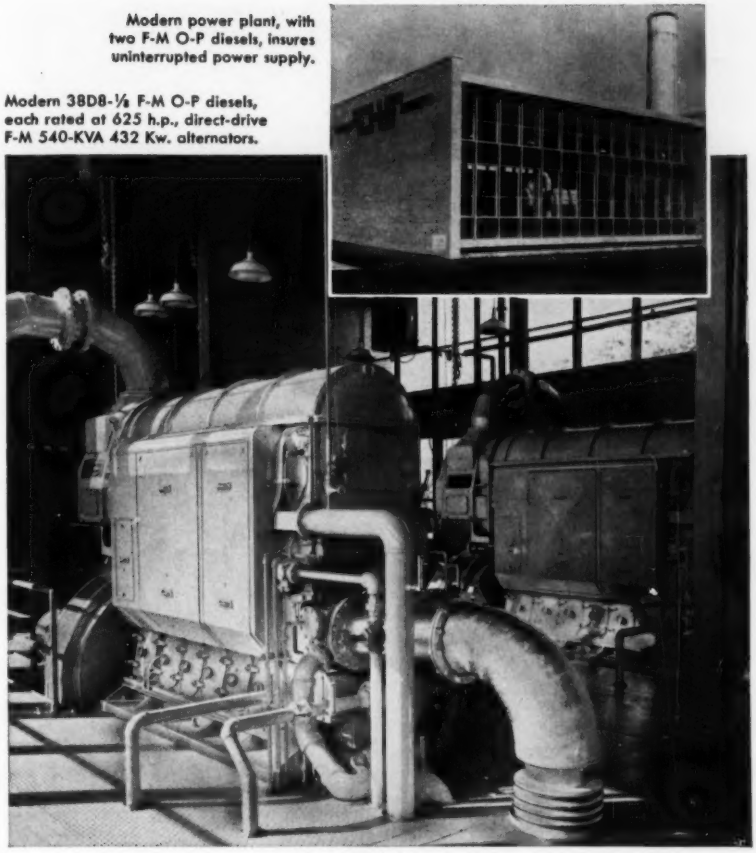
Nelson A. Rockefeller as state commissioner of commerce starting on that date.

In anticipation of taking up his new post, Mr. McHugh, who has completed 40 years of telephone service, on Mar. 12 tendered his resignation as president, director, and member of the executive committee of the New York Telephone Co., to be effective on Apr. 30.

"I deeply regret leaving my many friends in the company and the Bell System," he commented. "However, Governor Rockefeller is launching a vital program to improve the business climate and job opportunities in our state. This objective is so important and so close to my own heart and mind

Modern power plant, with two F-M O-P diesels, insures uninterrupted power supply.

Modern 38D8-⅛ F-M O-P diesels, each rated at 625 h.p., direct-drive F-M 540-KVA 432 Kw. alternators.



Miner installs power security!

In line with an increasing trend among institutions and industries, the new William H. Miner Agricultural Research Institute near Chazy, New York has installed a complete Fairbanks-Morse diesel-electric plant as positive protection against power failure.

The compact installation shown above features two Fairbanks-Morse Opposed-Piston diesels, direct-driving Fairbanks-Morse alternators.

The plant is completely self-sufficient. Should the area's hydro power supply fail, a 6-kw. Model 45 F-M diesel-generator set powers a motor-driven starting air compressor and pre-lube pumps to let the operator start one of the big F-M diesels in a hurry.

Find out why F-M two-cycle Opposed-Piston diesel power is unsurpassed for compactness, dependability and economy. Write Fairbanks, Morse & Co., 600 S. Michigan Ave., Chicago 5, Ill.

FAIRBANKS-MORSE

a name worth remembering when you want the BEST

DIESEL, DUAL FUEL AND GAS ENGINES • LOCOMOTIVES • ELECTRIC MOTORS • GENERATORS
PUMPS • SCALES • COMPRESSORS • MAGNETOS • HOME WATER SYSTEMS

that I welcome the opportunity to help him achieve it."

Mr. Phalen, who will succeed Mr. McHugh also as a director and member of the executive committee of the New York company, has been an executive vice president of the American Telephone & Telegraph Co. since March 1956. He began telephone work with the New York Telephone Co. in 1928 in the plant department in Syracuse, and served in positions of increasing responsibility until his election as a vice president of that company in 1944. He became a vice president of AT&T in 1948, and from 1952 to 1956 was president of the Michigan Bell Telephone Co. He is a graduate of Yale University.

Mr. McHugh has been president of the New York Telephone Co. nearly 10 years. He began his Bell System career 40 years ago as a clerk with the AT&T company. He was made general commercial manager of the upstate area of the New York Telephone Co. in 1925, and was elected public relations vice president of the company when he was 34 years old. For 20 years beginning in 1929 he held executive positions at AT&T, including vice presidential responsibilities in administration, public relations, and finance.

K. S. McHUGH

Mr. McHugh's civic and community activities in New York City and state include chairmanship of the Community Service Society of New York, and previously its presidency for seven years. He served as vice chairman of The Greater New York Fund for several years and is now a director and member of the executive committee for the Fund. In 1945 he was named by Mayor Wagner to organize a permanent Citizens Committee to Keep New York City Clean and he continues to serve as chairman and president.

Mr. McHugh was appointed a trustee of the State Univeristy of New York in 1954, and in 1957 he was named "man of the year" by the Hundred Year Association of New York. He is a director of the Commerce & Industry Association of New York, and a vice president of the Chamber of Commerce of the State of New York. He is a director of several companies, and a trustee of the Carnegie Institution of Washington.

Ireland Sets Line Record

In Ireland a record number of 10,500 new telephone exchange lines were installed last year, bringing the total number of telephones in the country to 137,000. About 5,500 miles of additional trunk circuits were provided.

Line Break Across River Restored by Arrow Power

Telephone service near Townsend, Mont. was restored across the Missouri River on Mar. 1 by bow and arrow.

A light plane flying along the river, snapped the Mountain States Telephone & Telegraph Co. rural line. The plane apparently was not damaged.

Repairman Ken O'Dell using a 50-pound bow and arrow tied to a nylon fishing line, spanned the river with one

LOOK TO THE LEADER...

for
• RELIABILITY
• SERVICE
• NATIONALLY KNOWN TELEPHONE SUPPLIES

Prompt delivery of your order as specified is assured by Lindsay's fast, efficient, personalized service. Lindsay specializes in telephone supplies *only* . . . warehousing a complete line of the finest nationally known brands . . . your guarantee of the best as you want it . . . when you want it.

LOOK TO LINDSAY

THE LINDSAY TELEPHONE SUPPLY CO., *Est. 1939*
360 East Highland Road, Northfield, Ohio • Telephone: IMperial 7-7181

shot. It is 300 feet wide at that point. Heavy twine was tied to the line and pulled across—then, a hemp rope, and finally the heavy wire.

Bell Transistor Amplifier Aids Telephone Operator

As an aid toward maintaining high quality and efficient telephone service, a new transistorized amplifier for operators' headsets has been made available recently to the Bell system operating companies.

Much of the good service provided by the telephone operator depends on her ability to hear distinctly. Noise conditions can be distracting, and individuals vary in hearing acuity.

These were some of the factors which influenced the Bell Telephone laboratories in developing a small and efficient amplifier for individuals who have difficulty in using the normal equipment efficiently. The amplifier works with central office switchboards, private branch exchanges, and test desks.

The new device, measuring 1¾ by 2 by 3 inches, is an auxiliary unit that plugs into the switchboard and contains two sockets which receive the cord from the operator's headset. She turns a small knob which controls the amplification level.

The amplifier makes important use of the junction transistor. This transistor is especially well suited for the operator's amplifier because it is small and obtains what little power it needs through the switchboard. Telephones for subscribers with impaired speech or hearing and other sets for noisy locations use junction transistors, too.

The new unit is superior to the larger early models which consisted of a small amplifier, amplification control equipment and batteries for power.

A number of field tests were held to select the best shape for the new amplifier. Dummy models were tried on a wide variety of switchboards to obtain operators' opinions on how various designs would function. The design finally selected was small, standardized to fit all Bell system switchboards and test desks, and presented a minimum amount of interference to the operators.

The amplifier is being manufactured at the Indianapolis works of the Western Electric Co., and is reported to be performing very satisfactorily in the field.

Letting It Lie

"When a man has not a good reason for doing a thing, he has one good reason for letting it alone."—Rev. Thomas Scott.

TYPE 88-T SPEAKERPHONE

World's most compact loud-speaking phone!

Automatic's new Type 88-T Speakerphone is the most compact loud-speaking phone you can buy. That's because it's transistorized! There is no control cabinet. It's the *same size and shape* as our famous Type 80—no extra bulk.

With the Type 88-T, no special power supply is required. You install it like a regular phone...without time-consuming delays.

Speakerphone gives your business subscribers *no hands* telephoning. It's ideal for conferences. Install it in the home, too. The lady of the house appreciates its convenience when she has her hands full.

You can get Speakerphone in a choice of 10 eye-catching colors. For the full story on the Speakerphone, write for Circular 1857-C.

AUTOMATIC ELECTRIC

NORTHLAKE, ILLINOIS

Subsidiary of GENERAL TELEPHONE

KLEIN

preferred by linemen
. . . electricians

The name Klein on leather goods is known and preferred by linemen and electricians everywhere. Klein tool belts, safety straps, pouches and pockets represent the highest in quality, the safest in design and construction.

In safety straps, Klein-Kord was the first specially woven fabric strap designed to permit the use of a tongue-type buckle without risk of slitting or ripping, even under severe strain.

Now Nylon Klein-Kord safety straps are the newest Klein development offering maximum safety with maximum flexibility. These are the only nylon straps designed to meet the tests given in Edison Electric Institute Report AP-2.

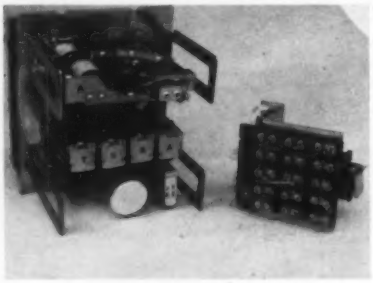
Free Tool Guide
A copy of the new Klein Pocket Tool Guide will be sent on request.

Foreign Distributor:
International Standard Electric Corp., N. Y.

Mathias KLEIN & Sons
Established 1857 Chicago, Ill., U.S.A.
7200 McCORMICK ROAD • CHICAGO 45, ILLINOIS

News on New Products

INTERCOM—The development of a 17-station dial intercom is announced by Kellogg Switchboard & Supply Co., communications division of International Telephone & Telegraph Corp.



The new product utilizes a dial intercom feature and a signal transfer circuit to provide the K-1A1 key telephone system with a 17-station-capacity dial intercom. Request NP1052.

•

TWO LINE-HOLD TELEPHONE—A new two line and hold telephone is also

announced by Kellogg Switchboard & Supply Co.

Designated the K575, the telephone provides two-line selection with mechanical holding. Request NP1053.

•

CONTROLLED ENTRY—Electrolok system, a device for opening doors to authorized personnel only, is another Kellogg new product.

The Electrolok device, a 10-button key system, is described as operating by sequential pulsing to predetermined codes, and controls entry to any area with a unit attached on the door.

The Kellogg type "M" relay is utilized in the unit's 10-ampere switching circuit. Request NP1054.

•

REGULATOR DIODES—A new complement of silicon zener regulator diodes has been announced by the ITT Components Division of International Telephone & Telegraph Corp.

The carefully controlled characteristics of these components, according to IT&T, may be used in a variety of circuits in such applications as power supply voltage regulators, meter protectors, go-no-go indicators, clippers, bias controls, filament voltage controls and voltage references.

The components are available in four nominal basic power ratings: Series B, 750 milliwatts; Series T, 1 watt; Series G, 3.5 watts; and Series K, 10 watts.

The first two of the series come in an axial pigtail top hat package and the higher power devices come in 10-32 stud-mounted cases.

The fabrication and packaging techniques used in their manufacture are reported to result in a stable, reproducible regulator which will withstand severe environments.

TELEPHONY PUBLISHING CORP.
608 S. Dearborn St.
Chicago 5, Ill.
Please have the manufacturer send me without obligation the literature indicated by the following numbers:

NP1052_____; NP1053_____; NP1054_____; NP1055_____;
NP1056_____; NP1057_____; NP1058_____; NP1059_____;
NP1060_____; NP1061_____; NP1062_____; NP1063_____;
NP1064_____.

Name . . . . . .

Company . . . . . .

Street . . . . . .

Town and State . . . . . .
3/21/59

Zener breakdown voltage ranges cover from 3.6 volts to 30 volts in each power rating, which, the company says, makes the devices suitable for wide use in the design of communication equipment, automatic machinery, aircraft and missiles, computers, and many other kinds of industrial and military equipment. Request NP1055.

•

SATT TICKET PRINTER—A new ticket printer developed by the General Telephone Laboratories provides the advantages, it is claimed, of fully automatic toll ticketing for telephone companies that, for reasons of limited toll volume, or commercial policy, do not use punched-card accounting equipment.

Designated as the Type 57 ticket printer, this system transcribes information from the toll tape, prepared by a SATT perforator, to 5-inch x 2½-inch toll tickets. These tickets—preprinted with the identification of each item—can be microfilmed for accounting records, and then can be sent to the subscriber with his monthly statement.

The new system consists of four separate components, which are supplied by Automatic Electric Co.

A motorized tape reader reads the perforated toll tape and transmits the information to the "Printroller."

The "Printroller," the system's main control equipment, consists of AE relays and stepping switches, and a battery eliminator which, the company says, provides a voltage-regulated, dc, power supply, so that this equipment can be used in accounting offices remote from the telephone exchanges.

The "Printroller" receives the information from the tape in codel code (four-element) and translates it to a form that will operate the ticket printer. It also inserts line spaces, carriage returns, etc., as required to fill out the ticket.

The ticket printer, the third component, is an electric typewriter arranged for electric control of the figures and machine functions (spacing, carriage return). A pin-feed platen is said to insure proper registration of the preprinted paper for the tickets. The typewriter is equipped with a variety of alarms to guard against absence of paper, improper paper position and other malfunctions.

The supervisory unit contains a ticket counter and facilities for alarm and supervisory signals.

A steel cabinet—3 feet wide, 2 feet deep and 3½ feet high—is available with this equipment. The ticket printer, mounted on rubber feet, and the supervisory unit rest on top of the cabinet. The tape reader and a ticket feed bin

Whatever your brush problem

Line?

Roadside?

Right-of-way?

WEEDONE can solve it!

With the right background—Chemical control of weeds and brush has developed along established lines of procedures and practices. Amchem initially pioneered the major advances in the field, has originated many of today's accepted procedures and products for efficient, economical weed and brush control. Your problems are in *experienced* hands when you hand them to Amchem!

With the right approach—Amchem's corps of weed and brush specialists are basically application specialists. Combining comprehensive theoretical and practical experience they are able to offer all industry a realistic approach to *any* weed or brush problem. These specialists have developed a variety of efficient weed and brush eradication programs over thousands of miles of line, roadside and right-of-way areas once choked and inoperable due to infestation.

With the right product—Amchem's tremendously diversified product line is your assurance that the right weed and brush killer is available and will be utilized for your specific problem. Weedone Brush Killers, for example, have been used in the field for years and proven eminently successful in eliminating weeds and brush wherever they are a problem. Why not bring your problems to Amchem?

Amchem and Weedone are registered trademarks of Amchem Products, Inc.

AMCHEM PRODUCTS, INC.
AMBLER, PA.

Please send me copies of your "Brush Control" brochure and full information on the uses of Weedone Brush Killers.

Name_____ Title_____

Company_____

Address_____

City_____ Zone____ State_____

AMCHEM

WEEDONE

BRUSH KILLERS

another chemical development of

Amchem Products, Inc.

(Formerly American Chemical Paint Co.)

St. Joseph, Mo. • AMBLER, PA. • Niles, Calif.

Heat that Tent Fast

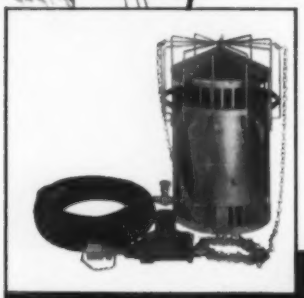
with a

MO PE CO

propane

TENT HEATER

MoPeCo propane tent heaters give fast dependable heat to splicers working aerial cable in cold, wet and windy weather.



- Two sizes - 8,000 or 12,000 BTU
- 50 hr. maximum output, 20 lb. tank
- Two 4-ft. adjustable chains
- Low pressure regulator
- 30-ft. L.P. gas hose
- Weight: 9 pounds
- Size: 10" diameter x 14" high

Order through your favorite distributor

Write or call

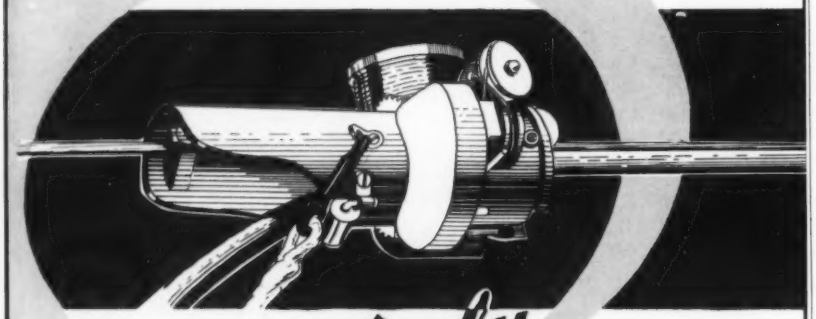
MORRISON-PELSUE CO.

Denver, Colorado

2256 So. Delaware St. RAce 2-2834

NOW!

For only $149.75 you can buy a lashing machine that will lash cable from approximately 1 inch in diameter down to drop cord size. Though small in size it is a full fledge rugged spinner capable of lashing cable that will compare in quality to any other spinning job.



The Model S spinner is designed to spin cable from drop cord size to approximately 1 inch in diameter, with a 12 inch spiral. It uses .045 lashing wire, 275 feet to the coil. Light weight, 14 pounds, made of cast aluminum and bronze, 15 inches long, 7 inches high. The Model S receives its spinning action from the lashing wire, as it pays out.

Only

$149.75

S CABLE SPINNING EQUIPMENT CO.

3100 Topeka Ave. Topeka, Kans.

are located on a shelf in the cabinet.

The "Printroller," complete with dc power supply, and the printed ticket return bin are located in the lower compartment of the cabinet. The cabinet is equipped with two vertical steel doors. A 12-foot cord is supplied to connect to commercial power.

In small exchange areas, AE says one type 57 ticket printer—whose printing rate is about 400 tickets per hour—can be centralized to serve several offices. In larger exchanges, the company recommends that a ticket printer be restricted to a single office. Request NP-1056.

•

BETTER POSITIVE PRINTS—A new 35mm microfile print film, recently announced by Eastman Kodak Co., markedly improves the quality of positive film duplicates of original microfilm negatives.

Kodak's subsidiary, Recordak, says the new film is expected to widen the use of aperture card systems for reproducing and distributing engineering drawings in industry and government.

For the first time, the company says, resolution of the new positive film matches the potential of the 240 lines per millimeter of original Kodak microfilm negative. Previously, positive print film had a potential resolution of only 150 lines per millimeter and this dropped to about 80 lines after printing and processing.

The new positive film is said to preserve over 90 per cent of the original camera film resolution. Third generation negatives made from the positive film for distribution purposes are therefore much improved over previous materials.

In industrial and government agencies, the new film, according to the company, assures higher quality third generation negatives used for reference and for reproduction uses in outlying repair depots and supply centers.

In addition to better drawing reproductions in industry and government agencies, now using the aperture card duplicating system, the new positive print film is claimed to provide better reading quality in roll film records of newspapers, magazines, and books for library use. Request NP1057.

•

ALL-IN-ONE CONTRACTOR'S KIT—Everything a contractor or maintenance man needs to fasten fixtures to any kind of masonry, according to Rawlplug Co., Inc., has been assembled ready for use in a compact "All-in-One Contractor's Kit."

Containing Rawlplugs, matching panhead sheet metal screws, and a Rawl spiral carbide masonry drill, the kit is

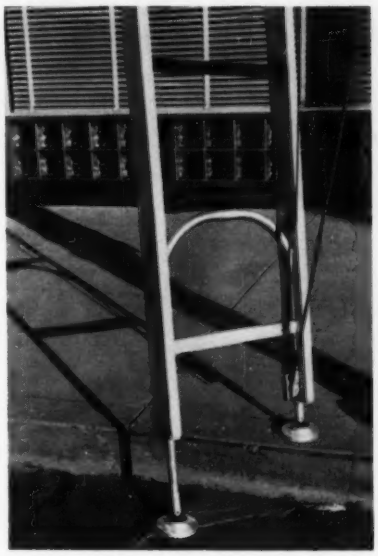
described as giving the user a package containing the right size screws, drill and masonry anchors for a fastening job.

Kits come in three sizes. No. 8 has 60 #8 Rawlplugs, 60 #8 x 1¼-inch screws and one 11/64-inch drill. No. 10 has 50 #10 x 1-in Rawlplugs, 50 #10 x 1¼-inch screws and one 3/16-inch drill. No. 12 has 40 #12 x 1-inch Rawlplugs, 40 #12 x 1¼-inch screws and one ¼-inch drill. Each kit comes in a clear plastic hinged box. Request NP1058.

•

LADDER EQUALIZER — A ladder equalizer has been introduced by Hopfeld Industrial Mfg. Co.

The company says their device is the only fully automatic level equalizer for ladders. It is easily set and locked on any irregular surface such as steps and slopes, as well as on hard or soft surfaces. It has a trapped, defined lock for safety, and self-lubricating ball sockets.



From endurance tests made at the HIMCO plant, the company reports that the ladder equalizer performed 40,000 separate operations under a 300-pound load. The special synthetic material in the equalizer showed no fatigue after this test.

The ladder equalizer is optional on the Himco line of Fiberglas non-conductive ladders, or is described as being easily attached to any ladder. Request NP1059.

•

POLE EYE PLATE—A recent addition to the line of MIF guy and dead end attachments manufactured by pole hardware division, Malleable Iron Fittings Co., is the MIF pole eye plate (Catalog No. PX88).

This piece, according to the company, is designed to hold the clevis end of a strain insulator so that the clevis pin is placed in double shear. The wood-contacting surface of the plate is equipped with integral teeth which help to resist the vertical load on guying installations.

The load, it is reported, can be applied at any angle between 10 degrees and 90 degrees, and rated capacity is

PROVED
BEST for restaurants
the BN Booth
attracts the eye day or night,
promotes more revenue. Colorful, clean, sturdy –
the BN Booth is best for you, too!
For full particulars, consult your distributor or write direct for folder... Benner-Nawman, Inc., 3421 Hollis Street, Oakland 8, California.
a B-N booth is a busy booth!

A PRODUCT OF STAMPINGS, INC.

THIS TRENCH IS COSTING ONLY 1 CENT PER FOOT

with the

POW-R-SPADE TRENCHER

Unsolicited performance reports from actual users state that POW-R-SPADE narrow trenches cost only 1 cent to 3 cents per foot, *including labor.* (Many report much less than 1 cent per foot.) Digging speed varies from 1½ ft. to 17 ft. per minute depending on soil conditions. POW-R-SPADE is light, rugged, with minimum of maintenance. Shipped *completely* assembled. Neat, fast, professional trenches—3 in. wide to 24 in. deep, or 4 in. wide to 18 in. deep Send coupon today.

One man can transport from job to job.

Stampings, Inc., 1017 Mound St., Davenport, Iowa
Please send literature on POW-R-SPADE:

NAME

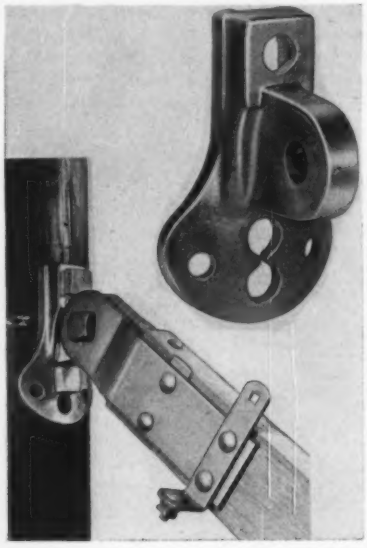
COMPANY

STREET

CITY STATE

20,000 pounds.

The design is said to be such that the single size can be mounted in a

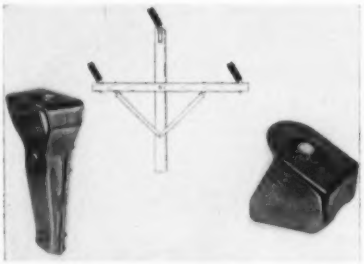


variety of ways, using bolts and lag screws in combination, thus meeting all requirements with a minimum inventory. Request NP1060.

•

IMPROVED INSULATOR MOUNTING—Two new accessories designed to improve the convenience and economy of line post insulator mounting are also announced by the pole hardware division of Malleable Iron Fittings Co.

One accessory is the MIF pole top bracket P532, for use with post-type insulators. Properly spaced teeth cast into the pole contacting surface of this bracket are said to provide efficient transfer of both vertical and transverse loads to the pole, help resist pole top splitting, and generally improve performance on the pole.



Attachment of the insulator to the bracket, according to MIF, is easy, due to the generous wrench room which permits tightening the insulator nut with standard wrenches.

For added convenience, the lower attachment hole is slotted to compensate for minor vertical drilling errors.

The second accessory is the MIF angle transition piece P533, designed for use separately on crossarms or with MIF pole top bracket P532 on line angle structures.

Both fittings are described as one-piece, tough, corrosion-resistant malleable iron castings, hot-dip galvanized. Request NP1061.

•

ALTERNATING FLASHER BARRICADE—"Alter-Flash," said to be the first alternating-flash transistorized barricade, has been introduced by Electronic Specialties Co. Featuring a wig-wag effect, Alter-Flash adds to the greater safety involved in longer flash duration.

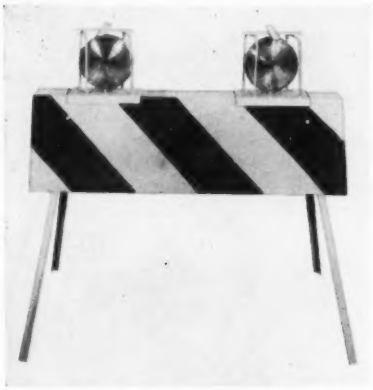
The company lists Alter Flash's features as follows:

Alternating-flash wig-wag effect gives from 100 to 120 flashes per minute.

More penetrating and brighter light.

Transistorized heavy-duty, hermetically-sealed power unit — no moving parts to wear out.

Self-contained light and barricade for rugged use.



Special guards for maximum protection of heads with minimum obstruction of light.

Powered by regular 6-volt hot shot battery.

Low operation cost with minimum upkeep required.

Heavy-duty die cast head with lucite plastic lenses; rotates 90 degrees. Also available with parabolic reflector.

Heavy gauge steel barricade with 42-inch-x-12-inch apron, available with 7-inch or 4-inch flasher head.

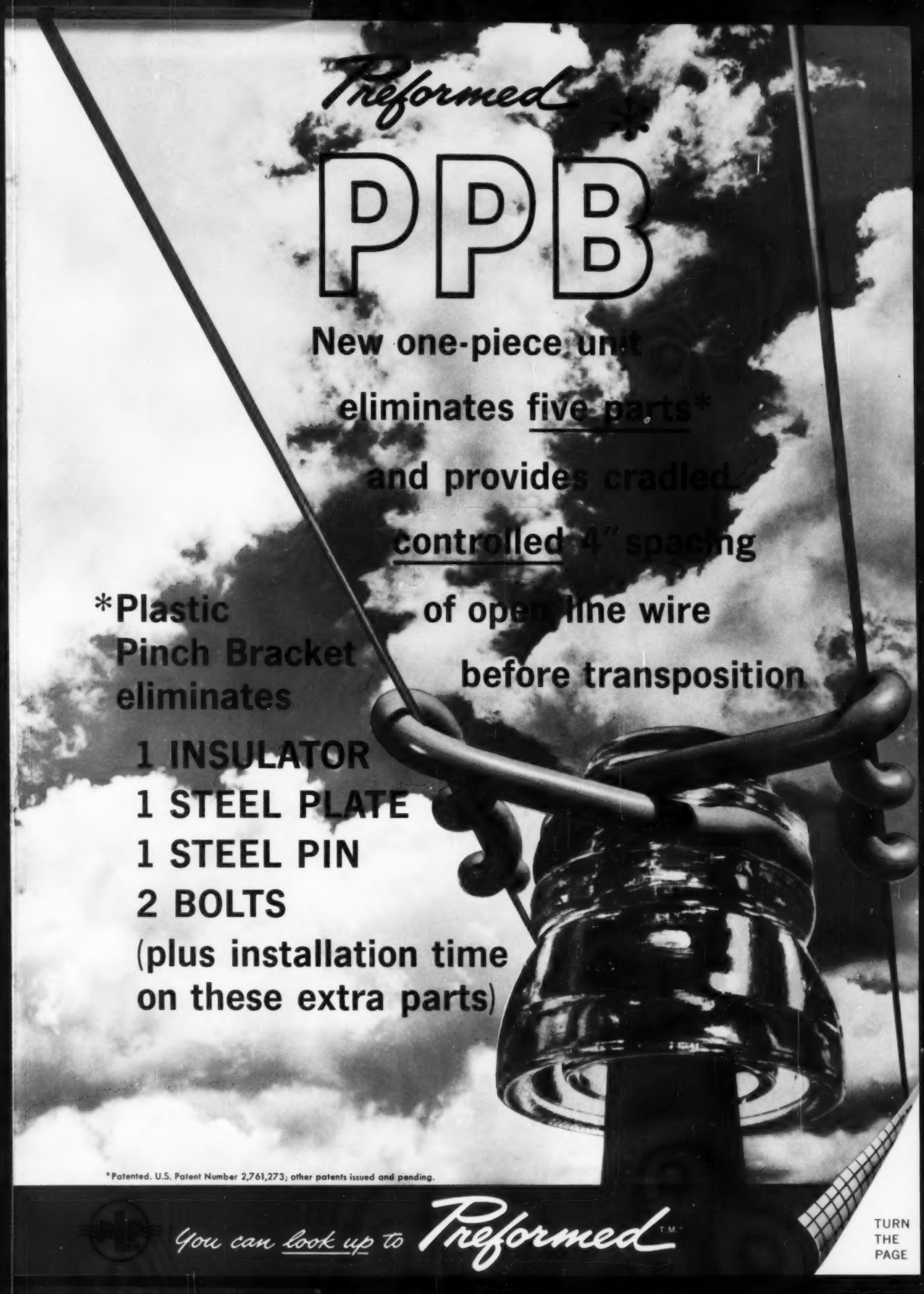
Request NP 1062.

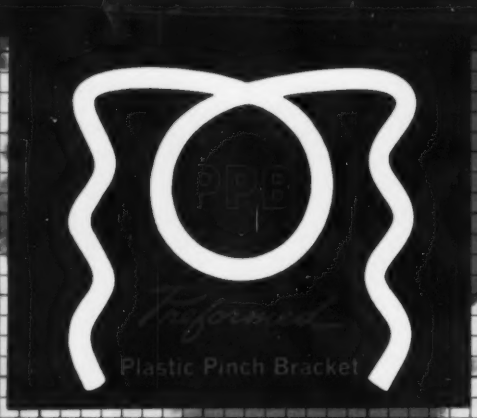
•

POISON IVY CONTROL—"Imunivy" and "Imunoak" are a standardized nontoxic alcoholic extract of poison ivy or poison oak put out by the E. D. Bullard Co. When taken as directed they are claimed to eliminate or reduce substantially the incidence of poison ivy or poison oak.

These products have been in use for over 30 years. During that period, it has been estimated that they are be-

(Please turn to page 60)


Preformed
PPB
New one-piece unit
eliminates five parts*
and provides cradled
controlled 4" spacing
of open line wire
before transposition
*Plastic
Pinch Bracket
eliminates
1 INSULATOR
1 STEEL PLATE
1 STEEL PIN
2 BOLTS
(plus installation time
on these extra parts)
*Patented. U.S. Patent Number 2,761,273; other patents issued and pending.
You can look up to Preformed™
TURN
THE
PAGE



Performance Proven

by a leading national laboratory and The Preformed Research and Engineering Center

The rigors of 40,000,000 Cycles of Vibration failed to leave a trace of wear or abrasion on the open line wire

Compare the Results

of Direct Current Leakage Tests:

TYPE OF PINCH BRACKET	RESISTANCE, WIRE TO WIRE
Preformed PPB	**700 Megohms**
2 DP INSULATORS	280 MEGOHMS
2 TS INSULATORS	140 MEGOHMS
2 TOLL INSULATORS	120 MEGOHMS

Send for Descriptive Brochure and Price List

Write to:

PREFORMED LINE PRODUCTS COMPANY
DEPT. PPB
5349 St. Clair Avenue • Cleveland 3, Ohio

PREFORMED communications products are distributed by all leading National Telephone Suppliers.

SEE OTHER SIDE

Exciting things are happening ...where Independent Telephone Companies are growing!

Engineering & Construction by EBASCO Services Inc.

Saddling the raging rivers of America, for example. Huge new dams create power to light a million homes...to run a thousand factories. And playgrounds for vacationers. And fertile fields to feed the world. With them come people to tend the business growth and share its harvest. In 11,000 expanding communities, their telephone needs are answered by independently owned and managed companies. Companies who may count their customers in the hundreds—or hundreds of thousands—yet operate with service techniques and facilities the equal of any. Today, these growing Independents serve more than 10 million telephones . . . are investing a million dollars a day in new equipment ...to help you reach all America.

INDEPENDENT

Write for free booklet, "An American Story"—illustrated facts about America's Independent telephone industry. Address Dept. 943.

U. S. INDEPENDENT TELEPHONE ASSOCIATION, Pennsylvania Building, Washington, D. C.

This USITA National ad to appear in TIME, March 23 and U. S. News & World Report, May 18.

Thornhill Publishing Company

A Division of Western Utilities Corporation

TELEPHONE DIRECTORY PUBLISHING

**Selling—Printing
Engraving—Production
Distribution—Collecting
Counsel for Advertisers**

"Our 12th Year"

OFFICES:

**San Francisco, California
GArfield 1-4826**

**Everett, Washington
ALpine 9-6126**

**Dallas, Texas
FLeetwood 2-1506**

Call any of our offices for a free estimate on your directory potential *today*—no obligation!

GUARD YOUR FAMILY

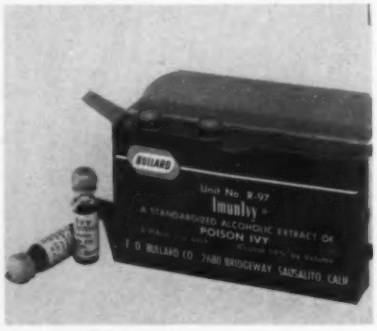
FIGHT CANCER WITH A CHECKUP AND A CHECK!

AMERICAN CANCER SOCIETY

tween 80 and 88 per cent effective. As no two individuals are exactly alike, the extent of benefits secured from Imunivy and Imunoak vary.

The two can be given orally or injected intramuscularly by a physician. The majority of the companies using these products make them available in the early spring. They are taken one vial in one-third of a glass of water, milk or fruit juice, two days in a row, followed by one vial every month until frost destroys the plants in the fall of the year. A number of companies prefer having their employes take the products in the spring and in the fall, while others use it monthly the year around.

No one can assume that he is immune to poison ivy, poison oak, or poison sumac, the Bullard Company states. Human beings are not naturally sensitive to the poison in the plants' sap, and do not develop a rash on their first contact with it. Sensitivity is created by repeated contacts; in some cases one or



two, and in others a great many. Though an individual may avoid the plants, he may become infected from clothing, tools, animals, and at times, even from another person.

Some form of these plants is found in every part of the United States. During 1958 it was estimated that more than 600,000 man days were lost to this irritation.

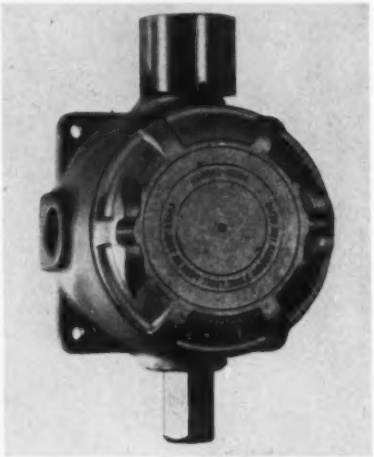
Imunivy and Imunoak are packaged, four 1-cc vials in a single unit pack. Request NP 1063.

•

HIGH PRESSURE CONTROL — A new high pressure control, type H98, is now being offered by United Electric Controls Co. This waterproof, explosion-proof control is said to be suitable for air, gas, or liquid pressures in hazardous locations where explosive gases or vapor are present. Pressure ranges of this control extend from 10 psi to 1700 psi, with a proof pressure of 2500 psi and a maximum pressure of 3500 psi.

The type H98 is a calibrated control. Pressure settings are made by turning a knurled knob against a calibrated dial. The setting, according to United, may then be locked with an allen wrench to avoid unauthorized tampering. A tamper-proof screw-on cap is also provided for additional protection.

This control has a cast iron base and aluminum cover. This construction, the company says, permits the use of the control in Class I, Groups C & D; Class II, Group E, F & G; and Class III as defined by the National Electrical Code. Approximate weight is 8 pounds, 7 ounces.



Many types of switches are available including: normally open, normally closed, or double throw with no neutral position, and are rated for 15 and 20 amps at 115/230 volts ac. All switches are single pole and suitable for ambient temperatures up to 180 degrees F. Request NP1064.

A. S. Gibson Retires From Rochester (N. Y.) Company

Arthur S. Gibson, vice president in charge of finance of the Rochester Telephone Corp., has retired after 38 years of service with the company.

He was employed as general books supervisor in 1921 shortly after the corporation was formed. In 1924 he was advanced to chief accountant and assistant treasurer.

In 1948 he was promoted to auditor and in 1950 was made controller. He was elected vice president in charge of finance in 1952.

He stated that during his service he has seen the assets of the corporation grow from 6 million dollars to over 85 million dollars and the number of telephones served from 52,000 to 280,000.

Mr. Gibson is a member of the National Association of Accountants and Genesee chapter, Telephone Pioneers of America, and has served as president of both organizations.

He is also a member of the Controllers Institute of America.

Whaley Appointed Midwest Manager, Graybar Electric

W. E. Henges, president of the Graybar Electric Co., Inc., announces the appointment of W. B. Whaley as midwestern district manager at Kansas City, effective Mar. 1.

Mr. Whaley joined Graybar as a student at the warehouse in Richmond in August, 1936. The following year he was appointed to the credit department.

After a three-year military leave he returned to the credit department in 1946; in that same year he was transferred to Chicago as creditman. In 1949 he was promoted to district credit manager at Jacksonville, Fla.; and in 1952, he was made district financial manager at Kansas City. He became assistant district manager in 1957, which position he has held until his present appointment.

Graybar's midwestern district includes Kansas City, Tulsa, Omaha, Sioux City, Oklahoma City, Wichita, Denver, Colorado Springs, Springfield, Mo., and Des Moines.

Cal. Company Utilizes New Microwave Network

The Citizens Utilities Co. of California has cut over a new 131-mile Motorola microwave system to provide trunk circuits between its exchanges in Redding, Burney, and Alturas.

Two mountaintop repeater stations, as well as the three terminal stations, are utilized in the system. The new network operates in the 6,000 mc. region. It replaces an older 890 mc. system.

A total of 20 voice channels is carried by the microwave signal, providing two Alturas-Burney circuits, ten between Alturas and Redding, and eight between Burney and Redding.

Diamond Expansion Appoints Hawaii, Mich. Sales Agents

Diamond Expansion Bolt Sales Co., Inc., Garwood, N. J., announces the appointment of a new sales agent in Honolulu. He is John Grinnon with offices at 712 Emily St. (P.O. Box 3258), Honolulu, Hawaii.

J. J. Miner Co., headed by J. L. Miner, has been appointed agent for the state of Michigan and for Toledo, O. Their offices are at 12326 Hamilton Ave., Detroit 3, Mich.

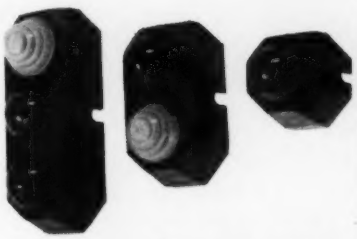
Name Va.-W. Va. Plant Head

Clark H. Scott, former North Carolina plant supervisor of the General Telephone Co. of the Southeast, Durham, N. C., has been named West Virginia-Virginia plant superintendent, with headquarters at Bluefield, W. Va.

WHAT'S NEW AT SUTTLE

TOP VALUES

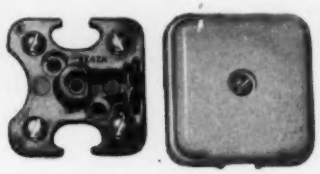
(FOR IMMEDIATE DELIVERY)



New "All Purpose" Indicator Lights

For use wherever a visual signal is needed. Manufactured by SUTTLE, these lights are used in offices, hospitals, factories, mills, residences, etc. Order a sample set today from SUTTLE or your local distributor to show your subscribers. Order in any combination of white, ruby or green.

	Each
SE 15 Indicator Light (1 lamp)	$2.30
SE 17 Indicator Light (2 lamps)	$3.80
SE 18 Indicator Light (3 lamps)	$4.70



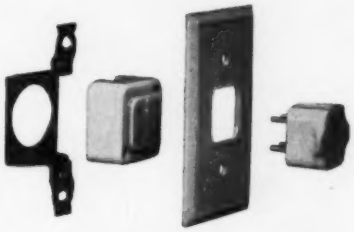
4-Point Blocks and Plastic Covers

Only SUTTLE mfg's. the independent industry's standard four-terminal connecting block with non-shorting plastic covers. Available in brown, black or ivory. Covers are high dielectric plastic—completely shorting resistant. For fast delivery of connecting blocks and covers, send your orders today to SUTTLE, or your local distributor.

SE 42A—**$.36** each.

S.E. 101D ($.55 ea) | S.E. 101C ($.40 ea) | S.E. 101A ($.25 ea)

10-Terminal Connecting Block and Non-Shorting Plastic Covers: Three sizes of non-shorting plastic covers are available to house one to four standard S.E. 44A 10-terminal connecting blocks. Covers to take one (101A), two (101C), and three or four (101D) 44A blocks come in brown or ivory.



S.E. 44 ($.28 ea) | S.E. 404 ($1.30 ea) | S.E. 198 ($.30 ea) | S.E. 283 ($1.00 ea)

Standard Plug and Jack Assembly: For flush or non-flush installations, 4-prong wall-mounting plug and jack assemblies are manufactured by Suttle. Plug and jack bodies made of high-impact, high-dielectric plastic. Specify brown or ivory when ordering.

All Products Backed by Suttle's 48-Year Unconditional Guarantee

Manufacturers, suppliers, and printers to Telephone Men

For further information, specifications or quotations on these telephone supplies—write, wire or telephone—

SUTTLE EQUIPMENT CORPORATION

401 N. 15th St., Lawrenceville, Ill. Phone: Lawrenceville 782

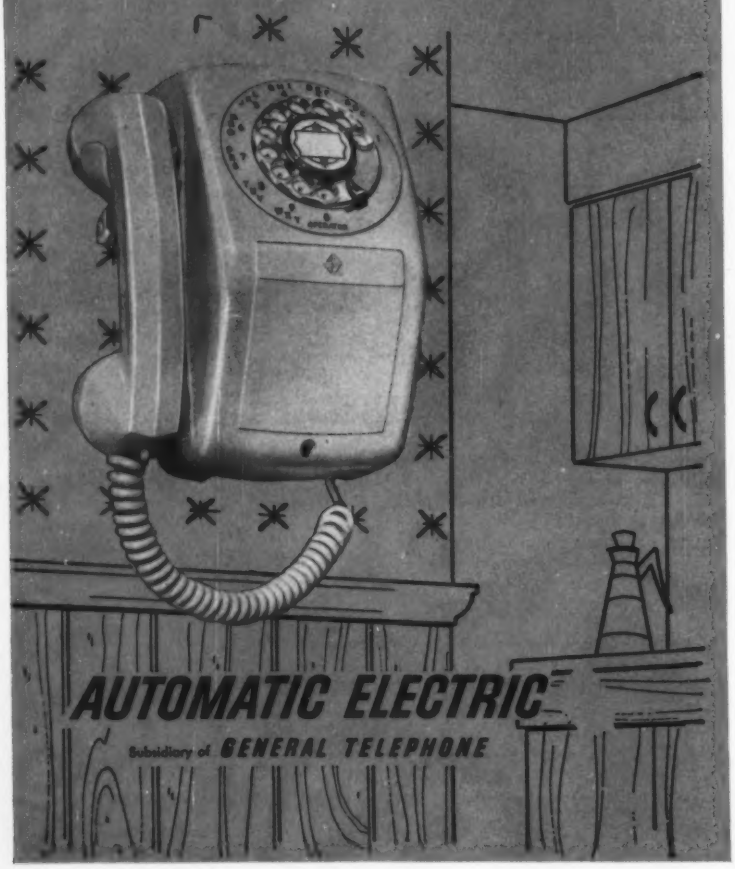
135 S. La Salle St., Chicago 3, Ill. Phone: DEarborn 2-3108

TYPE 90 WALL TELEPHONE

Saves Space in Kitchen or Hall!

The smart, functional design of Automatic's Type 90 Wall Telephone really pleases the ladies! And, since modern homes are getting smaller—counter and table space is at a premium. As a result, a space-saving wall telephone is the perfect answer for today's young homemakers.

Type 90 Wall Telephones offer a "wrap-around" cradle—on the *side* of the phone—so it's almost impossible to knock the handset off the hook. Installation is easy, too. You can get the complete story on Type 90 Wall Telephones from your Automatic representative. *Address: Automatic Electric Sales Corporation, Northlake, Illinois. Or call, Fillmore 5-7111. In Canada, Automatic Electric Sales (Canada) Ltd., 185 Bartley Drive, Toronto 16.*



U. S. I. Chemicals: Phelps Is Customer Service Leader

The appointment of Richard C. Phelps as customer service group leader for U. S. Industrial Chemicals Co., was announced recently. He will supervise technical service to customers for Petrothene polyethylene resins.

R. C. PHELPS

Mr. Phelps has been a technical service engineer since he joined U. S. I. in 1957. He was graduated from Missouri School of Mines in 1951 with a B. S. degree in chemical engineering.

Previously he was employed by E. I. du Pont de Nemours & Co., Inc.; Spencer Chemical Co.; and the Panelyte division of St. Regis Paper Co.

Between 1941 and 1947 he served in the European theater with the U. S. Army Signal Corps. He will continue to be located at the company's Polymer Service Laboratories, Tuscola, Ill.

He is a member of the Society of Plastics Engineers, Tau Beta Pi, Phi Kappa Phi and Alpha Chi Sigma.

Hartman Made Chase Philadelphia Manager

The promotion of Howard N. Hartman to district manager of Chase Brass & Copper Co. at Philadelphia, effective Mar. 1, has been announced by George B. Moseley, vice president-sales.

Mr. Hartman succeeds Willard M. Brown, a veteran of 32 years with Chase, who retired Mar. 1.

A native of Minneapolis, Minn., Mr. Hartman was graduated from Ohio State University in 1948. Throughout World War II he served as a pilot in the U.S. Air Force. His war decorations include the air medal with five clusters.

Joining Chase in February 1952, he was first a sales trainee and later made salesman in Cleveland. In 1956, he was transferred to Philadelphia as an outside salesman, the post he left to become district manager.

Mr. Brown was born in Toledo, O., and is also a graduate of Ohio State University, class of 1916. He had worked as chief metallurgist for the Detroit Copper & Brass Rolling Mill for several years prior to coming to Chase in 1927 as a salesman in Detroit. He subsequently filled several executive sales positions for Chase in Cleveland before his appointment as manager of their Washington, D. C., office. He left this position in 1952 to accept the post of district manager at Philadelphia.

LATEST DEVELOPMENTS

(Continued from page 24)

sites between Mt. Whitney, highest peak in the U. S., and the Isabella Reservoir near Bakersfield. The network includes a 20-foot H-frame tower at each of three snow gauge sites and two relay towers, all in remote, unattended areas. In addition, there is a terminal tower at the Isabella base station.

Highest gauge site is at 11,500 feet elevation, just 10 miles from Mt. Whitney. Greatest distance between any two sites is 43 miles although the system in Idaho has relay stations as far apart as 70 miles.

Each gauge site contains a minimum amount of equipment. Basically, it includes a radiation detector of the scintillation type, a radio transmitter, receiver, battery and control unit.

Radiation for measuring the water content of the snow is supplied by a small deposit of radio-active cobalt buried at ground level. Directly above the cobalt at a height of 15 feet, is the radiation detector. As the radiation from the cobalt passes through the snow to the detector, some radiation is absorbed in proportion to the amount of water in the snow. Only the water content, not the depth of the snow, affects the radiation. Special circuitry is used to discriminate against spurious radiations caused by cosmic rays and electrical noise.

By means of radio communications (telemetering), the electrical impulses from the detector, which correspond to the amount of radiation it receives, are transmitted through the two relay stations to the Isabella base station. Here, the information is permanently recorded on paper tape.

The snow gauge operates in response to query messages which are steady tones of selected frequency. These are transmitted from the base station

TYPE 80 DESK TELEPHONE

All the Features Your Subscribers Want!

Automatic's famous Type 80 Telephone combines beauty with function. It's the perfect companion for today's modern furnishings. Just right for family rooms or any other room in the home.

Subscribers like the Type 80 Telephone—not only for its beauty, but for its other features, too. They like the life-like transmission and the clarity the Type 80 provides. They like the choice of 10 decorator colors. And, the lighter handset, because it's easier to use.

Use the Type 80 to earn extra revenue for you. To place your order, contact your A.E. salesman or write: *Automatic Electric Sales Corporation, Northlake, Illinois. Telephone: Fillmore 5-7111. In Canada, Automatic Electric Sales (Canada) Ltd., 185 Bartley Drive, Toronto 16.*

AUTOMATIC ELECTRIC

Subsidiary of **GENERAL TELEPHONE**

through the relay stations. As each unattended site receives its interrogation, the battery-powered VHF radio transmitter is switched on and the hydrological data beamed to the base station.

There are two channels of communication between the base station and each of the gauge sites. One is used for transmitting queries to the gauge, and the other for transmitting water content data back to the base.

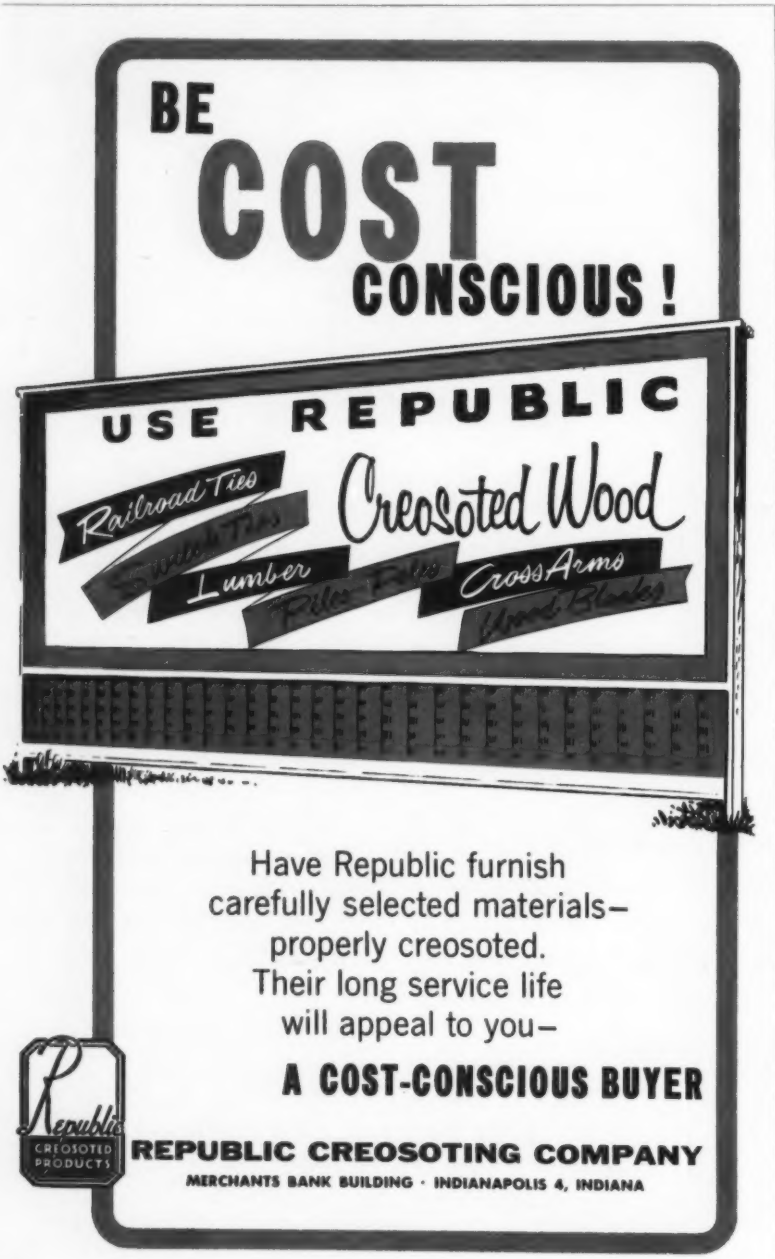
The receivers which operate at about 170 megacycles are transistorized to conserve battery power. The transmitters also are designed for low power consumption. All of the equipment at the gauge sites and relay stations will operate unattended for nine months.

Another interesting feature of the Model 211A system is its ability to be operated both automatically and manually. In automatic operation, the radiation count can be recorded daily or can be programmed for several different time intervals. In "on call" operation, the radiation count can be obtained at any time by merely operating a switch at the base station.

For equipment servicing purposes, the system also provides a two-way voice communications circuit between any of the gauge and relay sites as well as the base station.

According to Sierra, the Model 211A system can easily be expanded to report temperature, barometric pressure, humidity, wind velocity and other weather phenomena. Its versatility can also be extended to other applications, such as stream gauging and controlling cloud-seeding equipment. For this reason, the system is of particular interest to utility engineers.

(To be continued next week)



Sanders Named to Manage AE Office in San Salvador

Automatic Electric International has announced the opening of a new office in San Salvador which is designed to provide staff assistance for customers and agents in the Central American area.

R. R. SANDERS

Robert R. Sanders, formerly telecommunications engineer of Automatic Electric de Mexico, S.A., has been named manager of the new El Salvador office. Mr. Sanders will direct activities for all Central American countries, exclusive of Mexico.

He went to Automatic Electric from Lenkurt Electric in 1952. Prior to his assignment in Mexico, he served as International's carrier and radio sales manager.

Raytheon Names Loomis Head Of Receiving Tube Division

The promotion of George Loomis to the post of manager of Raytheon Mfg. Co.'s Receiving Tube Division has been announced. He was manufacturing manager under O. P. Susmeyan, the former division manager.

The Receiving Tube Division has

HEAR every word on the TELEPHONE

with a BURGESS-MANNING "Hear-Here" Booth

Now you can hear every word clearly over the phone—even right next to a noisy machine. Burgess-Manning "HEAR-HERE" Booths are acoustically designed to provide an "isle of quiet" in the noisiest place. Ideal for manufacturing areas, hotels, stores, depots, shipping rooms, etc.—a model especially suited to each location.

Different in many ways:

- No Noise—always quiet
- No Doors—always fresh air
- No Corners—to collect dirt
- No Glass—to break

Write for Catalog - Bulletin A-142-2T

PERFORMANCE GUARANTEED

Architectural Products Division of

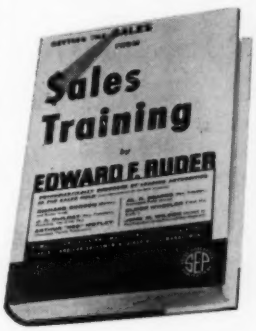
BURGESS-MANNING COMPANY

5970 Northwest Highway, Chicago 31, Illinois

Manufacturers of 3-Way Functional Ceilings and Acousti-Booths for Telephoning

NEW TRAINING BOOK RECOMMENDED BY TELEPHONY

Here is a much-needed book on sales training for use by managers, department heads, superintendents, trainers, schools and libraries.



The newest training techniques are given practical application. Included are indoctrination, refresher and by mail training; memory, reading and speech improvement; and training supplements—sales contests, meetings, manuals, house organs, and new recruiting and hiring methods. This new book is enthusiastically endorsed by the top authorities—Arthur Motley, Pres., *Parade Publications;* Al Seares, V.P., Remington Rand; Elmer Wheeler, Consultant; John Wilson, Retired V.P. Sales, National Cash Register; J. McInay, V.P., Marketing, Ray-O-Vac; Richard Borden, Consultant.

Bound In Beautiful Executive Leatherette

MAIL COUPON TODAY

To: Book Department,
TELEPHONY Publishing Corp.
608 S. Dearborn St., Chicago 5, Illinois

Send me _____ copies of "Getting the Sales from Sales Training" @ $5.95 each.

☐ Payment enclosed (postpaid) ☐ Bill me

Name_____

Address_____

City_____ Zone____ State_____

Company_____ Position_____

RESISTS OLD AGE

THANKS TO "YOUNG PROCESS"!

Kennecott's exclusive "Young Process" lead sheath does much to lengthen the life of Kennecott Telephone Cable. This sheath production method virtually eliminates oxides and impurities! Sheath is far more uniform in strength and burst resistance, with greatly reduced weld area. It provides increased protection against damage and aging. Cable retains full electrical properties over its long life! Contact the Chase sales office near you for full information.

IT'S KENNECOTT TELEPHONE CABLE

CHASE BRASS & COPPER CO., WATERBURY 20, CONN.

Distributor for the Products of the

KENNECOTT WIRE & CABLE DIV.

of The Okonite Company

CHASE WAREHOUSES and OFFICES:

Atlanta	Cincinnati	Grand Rapids	Milwaukee	New Orleans	St. Louis
Baltimore	Cleveland	Houston	Minneapolis	Philadelphia	San Francisco
Boston	Dallas	Indianapolis	Newark	Pittsburgh	Seattle
Charlotte	Denver	Kansas City, Mo.	New York (Maspeth, L.I.)	Providence	Waterbury
Chicago	Detroit	Los Angeles		Rochester	

CRITICAL
SAGE
REQUIREMENTS
can best be met with
COLLINS MICROWAVE and CARRIER

RELIABILITY FEATURES
- Collins synchronized carrier
- Collins frequency-diversity system
- Collins transmitter automatic frequency control
- Collins electronic diversity combiner

These features, plus high quality design and corrosion-resistant material advantages insure that SAGE goes through with the required frequency response, with essentially no phase distortion, and optimum signal-to-noise ratio.

For further information, call or write Collins Radio Company, Texas Division Sales, 1930 Hi-Line Drive, Dallas 7, Texas, Phone ADams 5-4511.

COLLINS
COLLINS RADIO COMPANY
DALLAS • CEDAR RAPIDS • BURBANK

plants at Quincy and Newton, Mass. Its products range from receiving tubes employed in radio and television sets to those used in industrial applications.

Prior to joining Raytheon last August, Mr. Loomis had been with Sylvania for 23 years. He served in factory engineering, design engineering, as manager of the product development section, and as manager of the Altoona receiving tube plant.

He is a member of the Institute of Radio Engineers and the National Management Association.

West Meets East in Longest Independent DDD Call

It took only seconds to complete what was probably the longest nationwide direct-distance-dialed telephone call between Independent telephone companies. The call—spanning the continent—was from the president of Ellensburg (Wash.) Telephone Co. to the president of Orange County Telephone Co., Middletown, N. Y.

Mayors and chamber of commerce officials of both towns were on hand to dramatize the inauguration of improvement of services for townsfolk and business men through the speed and convenience of Direct Distance Dialing (DDD). The distance covered by the exchange of facilities totaled some 3,000 miles, marking another milestone in Independent telephone history.

R. E. Rudolph, Ellensburg company president, dialed direct to Middletown, using a type 88 Speakerphone to tell Charles C. Chappell, Orange County president, about the new service in Ellensburg.

YOU KEEP
RED CROSS
ON THE JOB

What was probably Independent telephony's longest direct distance dialed telephone call was recently placed by Ellensburg (Wash.) Telephone Co. to Orange County Telephone Co., Middletown, N. Y. Shown in a "split-screen" photo telling both sides of the story are, left to right, R. E. Rudolph, Ellensburg company president, Ellensburg Mayor Charles Kelso and Leonard Thayer, chamber of commerce president, who are discussing the transcontinental service with Mayor Raymond E. Swalm of Middletown, Roscoe F. Giles, of the Middletown chamber of commerce and Charles C. Chappell, Orange County company president.

Secode Elects Garcia and Herman; Naper Heads Mfg.

A. S. Garcia has been elected president of Secode Corp., San Francisco firm manufacturing selective control and signaling devices. He succeeds Eric Cogill, who announced his retirement from active management after 31 years as head of the corporation. Mr. Cogill will continue as director-founder of Secode and act as consultant to the engineering department.

A. S. GARCIA

ISAACK HERMAN

Secode manufactures special communications systems for the telephone industry, manual and automatic dial signaling systems for mobile and point-to-point communications, alarm and control equipment and modular system components.

Mr. Garcia has been associated with Secode for the past two years as treasurer. His experience covers 25 years in financial management, specializing in general and cost accounting. He was associated with Arthur Young & Co. in

TYPE 85 TELEPHONE

Provides two-line pickup and extension exclusion!

Three different models of the Type 85 Telephone fill a special need for many subscribers in your area. Doctors, attorneys, insurance offices, real estate agencies and many others are all potential customers. They'll want the convenience, efficiency and privacy that these telephones provide.

Type 85-A gives your subscriber 2-line pickup and signaling. The user turns a button to switch over to line 2. By *pressing* the same button, he signals his secretary.

Type 85-B gives your subscriber extension exclusion. It is equipped with two buttons. To cut off all extensions, the user presses the exclusion button. To bring in an extension party, he simply presses the other button.

Type 85-C combines two-line pickup, signaling and extension exclusion.

For more information on Type 85 Telephones write for Circular 1909.

AUTOMATIC ELECTRIC
NORTHLAKE, ILLINOIS
Subsidiary of GENERAL TELEPHONE

EXTRA Holding Power
QUICKLY Installed
TOUGH For long life

EVERSTICK ANCHORS

For new construction and maintenance — Everstick Anchors speed up work and provide dependable anchorage on all types of jobs. Made of resiliant, rust resistant malleable iron. The toughest anchors made. Write for bulletin.

EVERSTICK ANCHOR CO.
FAIRFIELD, IOWA

MAGNOLIA GLAYZIT
Telephone Refinisher
POLISHES
THE SPRAY WAY!

Cleans, revitalizes, preserves the surface! Dustproof—polish can't come off on cloth when dusting. Only dust comes off! Restores cabinet-maker's finish to furniture! Adds years to life of any finished surface! Supreme for telephones.

MAGNOLIA CHEMICAL CO., INC.
CHICAGO • LAFAYETTE, INDIANA
ATLANTA • DALLAS • LOS ANGELES

Distributed by
LEICH SALES CORP.
427 WEST RANDOLPH STREET
CHICAGO 6, ILL. • RAndolph 6-5441

L. J. NAPER

the public accounting field, is a certified public accountant, and currently is vice president and director of Ansor Corp. and A. Soriano y Cia.

Isaack Herman, formerly general manager of Secode, has been elected executive vice president, with full responsibilities for the general management of the electronics firm.

L. J. Naper, formerly manager of Lockheed Aircraft's electronic assembly division, has been appointed manager of manufacturing for Secode.

Mr. Naper's background covers 18 years of experience in all phases of production management, both of a contractual and proprietary nature, including the position of manufacturing coordinator for the Lockheed missile systems division. He also has served as quality control and production manager for Remler Co., Ltd., San Francisco.

During the war, Mr. Naper served with the U.S. Navy.

As They See Us

"We judge ourselves by what we feel capable of doing, while others judge us by what we have already done."—LONGFELLOW.

INSPECTION SERVICE
"AT TIMBER TREATING PLANTS"
Of poles, crossarms, and preservative treatments. Analysis of wood preservatives. Consultation and specification writing.
A. W. WILLIAMS INSPECTION CO., INC.
MOBILE, ALABAMA
New York • St. Louis • Portland
Inspectors stationed throughout the U.S.A.

Professional Engineers - Contractors
Central Office Installation
Cable Splicers, Plant Crews, Installer Repairmen
HENKELS & McCOY
PHILADELPHIA
1800 N. Johnson St., Elkhart, Ind., Tel. 3-2915

CABANISS-POGUE COMPANY
Consulting Engineers
Appraisals—Cost and Rate Studies
Financial Assistance
GRANT BLDG., ATLANTA, GEORGIA

CABLE CONSTRUCTION CO.
1512 Center St. Tacoma, Washington
ENGINEERING - CONSTRUCTION
SPLICING - CABLE PLOWING
CENTRAL OFFICE INSTALLATION
World-Wide

CARL C. CRANE, INC.
Consulting Engineers
2702 Monroe Street, Madison 5, Wis.
Telephone CEdar 3-4218

ROBERT E. FOLEY
CONSTRUCTION CORP.
DESIGN—SURVEYS—APPRAISALS—Construction and Maintenance of Overhead and Underground Telephone Plant. Complete supply of poles available for emergency requirements.
48 GRISWOLD STREET
BINGHAMTON, N. Y. TEL. 2-7215

McGRATH
ENGINEERING, INC.
Consulting Engineers
209 West 6th Street
TOPEKA, KANSAS
Telephone CE 2-2358

SLOAN, COOK & LOWE
CONSULTING ENGINEERS
Appraisals—Original Cost Studies
Plant, Traffic and Commercial Engineering
120 S. La Salle St.
Chicago 3, Ill. Tel: FRanklin 2-5924

TUDOR AND YAGER, INC.
Telephone Construction
TIPTON, INDIANA
Phone OSborne 5-2267

Communication Equipment Installation
Maintenance Modifications — Additions
Buy — Sell — Trade
Any Make — Type
Midwest Communications Service Co.
P.O. Box 3008 Telephone SW 9-4311
Lubbock, Texas

RECONDITIONED TELEPHONES

W.E. & Kellogg late type #500 sets with new black cases. Reconditioned with st. line ringers.

Price with dial.....$19.50

Price dial blank.....$16.50

Price with dial, less ringer..$16.50
(install your cycle ringer)

W.E. #302 ★ A.E. #40 ★ Kellogg #1000 ★ Stromberg-Carlson #1243 self contained desk sets.

Recond. With met. dial and st. line ringers. Cycles on request.

Price with dial.....$12.50

Price dial blank.....$10.50

As is working order:

Price with dial.....$10.50

Price dial blank.....$ 8.50

LEICH 901 MAGNETO DESK OR WALL Late type instruments with 1600 ohm ringers & strong generator for those long rural lines. Can convert to C.B. or dial.

Price recond. with coil cord..$20.50

Price as is working order....$15.00

TERMS: OPEN ACCOUNT FOR YOUR INSPECTION TO RATED FIRMS

REQUEST CATALOG: wire, cable, trucks, hardware, switchboards, test sets, parts, tools.

BOHNSACK EQUIP. CO.

GERMANTOWN, N. Y.

Telephone 213 or 214

CABLE — IN STOCK

Immediate Delivery!—Any Length From 50 Ft. up to FULL LENGTH REELS—All Sizes & Gauges Available!!

RURAL & URBAN DISTRIBUTION CABLE:

19 Ga.—22 Ga.—24 Ga.
2, 3, 4, 6, 11, 12, and 16 Pairs.

AERIAL & DUCT PLASTIC JACKETED CABLE

Red & Clear—REA Spec. PE-14:

26 Gauge—51 and 202 Pairs.
24 Gauge—16, 26, 51, 152, 303 and 404 Pairs.
22 Gauge—11, 16, 26, 51, 76, 101, 152, 303 and 404 Pairs.
19 Gauge—6, 11, 16, 26, 51 and 76 Pairs.

FULLY COLOR-CODED—REA Spec. PE-22:

24 Gauge—25, 50 and 200 Pairs.
22 Gauge—12, 18, 25, 50, 75, 100, 150 and 200 Pairs.
19 Gauge—25 and 50 Pairs.

FULLY COLOR-CODED—Old REA Spec. PE-22:

26 Gauge—26 Pair.
24 Gauge—202 Pair.
22 Gauge—16, 26, 76, 101, 152 Pairs.
19 Gauge—16 and 51 Pairs.

ABOVE IS SAMPLE LISTING. Also Have Direct Burial PE-23 Spec.

CALL TELE-WIRE COLLECT @ Axtel 7-4756
For Your Price and Quick Delivery!

TELE-WIRE SUPPLY COMPANY, INC.

178-10 LIBERTY AVENUE — JAMAICA 33, L.I., N.Y.

EVERYTHING
In Telephone Printing

SUTTLE EQUIPMENT CORP.

LAWRENCEVILLE, ILL. PHONE: 782

CABLE SHEATH STRIPPER

N-2878

• HANDY • FAST • SAFE • EFFICIENT • EASY TO USE

Slits plastic or fabric covered cable. Rigid Phenolic Handle. Stainless steel saddle holds guide and blade in place. Groove guides and supports cable. 2 extra blades.

$7.80 each — IMMEDIATE DELIVERY

P. K. NEUSES, INC.
511 N. Dwyer St., Arlington Heights, Ill.

"America's Best Cablemen"

A complete cable construction service for telephone companies.

U. S. CABLE CONSTRUCTORS, INC.
2002 E. Wisconsin Ave. P.O. Box 378
REgent 4-9882
Appleton, Wisconsin

Call us collect for

- CONSTRUCTION CREWS
- CABLE SPLICING
- STATION INSTALLATION
- CENTRAL OFFICE INSTALLATION
- UNDERGROUND DUCT SYSTEM
- CABLE TRENCHING AND PLOWING

IRBY CONSTRUCTION CO. Since 1925

JACKSON, MISSISSIPPI
815 SOUTH STATE ST. FL 5-4532

Whether a Winch Line Hook or a complete Line Body check your requirements with

UTILITY TOOL & BODY CO.

CLINTONVILLE, WISCONSIN

CLASSIFIED SECTION

Rates 15 cents per word payable in advance. Minimum charge $3.00 for 20 words or less. Classified advertisements must reach us 8 days before publication date.

POSITION WANTED

MAN EXPERIENCED IN ALL PHASES of Telephone Management desires to relocate with growing progressive company in Southeastern states preferred, or with supplier in the middle west. Full knowledge of Commercial, accounting, plant and traffic, rates and filings. Reply Box No. 4218, c/o TELEPHONY.

WANTED TO BUY

WANTED BY THIS SUMMER—North CX 200 or CX 1000 with about 200 or more lines equipped. Telephone Co., Kerkhoven, Minn.

TELEPHONES—all types—any condition, candlesticks, wall sets, etc. Write advising quantities available. Our trucks will pick up. Reply to Box No. 3952, c/o TELEPHONY.

HELP WANTED

ENGINEER TO ASSUME COMPLETE CHARGE of Engineering Department, Class "A" telephone company. Reply Box No. 4217, c/o TELEPHONY.

EXPERIENCED CABLE SPLICERS and central office equipment installers for work on large cable projects in the United States and overseas. Write Box No. 4216, c/o TELEPHONY.

OUTSIDE PLANT CONSTRUCTION SUPERINTENDENT capable of supervising complete construction operations for contractor. State experience and salary requirements in first reply. Write Box No. 4215, c/o TELEPHONY.

HELP WANTED

CABLE SPLICERS, Station Installers, Equipment Installers, Linemen. Experienced men needed. Steady work, good pay. Henkels & McCoy, 1800 Johnson St., Elkhart, Indiana, or 6100 N. 20th St., Philadelphia, Pa.

WANTED — Journeymen Testboard and Switchmen. Must have at least three years experience. Starting rate $2.65 per hour. Write to Southern Nevada Telephone Co., P.O. Box 1190, Las Vegas, Nev.

TELEPHONE ENGINEER FOR OVERSEAS ASSIGNMENT

Experienced engineer thoroughly versed in Step-by-Step equipment, with command of Spanish, French or Italian, will be trained for assignment abroad. Background in engineering, operating and installation desirable. Age 28-30. Please send complete résumé of education, experience and salary requirements in confidence to Box No. 4214, c/o TELEPHONY.

FOR SALE

EQUITY IN DIAL TELEPHONE plant located at Asbury, Missouri. REA financed. Contact Ross Gault, Wellsville, Kans.

LEICH 901-wall or desk magneto telephones. Cleaned, tested and guaranteed, $16.50 each. As removed from service, no broken or missing parts, $15.00 each. Turtle Lake Tel. Co., Turtle Lake, Wis.

SWITCHBOARD CABLE—Used cable—good—30 to 80 foot lengths W.E. 70 CL-83 Conductor; 16 CL-63 Conductor. Other makes and sizes. Priced right. Immediate shipment. Midwest Communications Service Co., Box 3008, Lubbock, Tex.

BRAND NEW COOK-XB-16 PAIR unprotected cable terminals, with stubs. Mfg. price $17.50—our price $5.00 each. Limited supply. F.O.B. Chicago, Ill. Independent Telephone Repair Co., 2137 West 21st St., Chicago 8, Ill.

RECORDAK MICRO-FILM MACHINE, Model JC. Excellent condition, replacing with automatic model. $250. F.O.B. Hazen. West River Telephone Corp., Hazen, N. D.

WIRE CHIEF'S TEST CABINETS BE-70-P by Automatic Electric for Signal Corps. Mahogany finish 18 x 12 x 9 inches. Panel has 7 inch Weston meter, 9 test keys. Magneto generator, buzzer, antisidetone coils, etc., inside. New, with 62-page instruction manual $49.50 FOB our plant. Electronicraft, Inc., Box 399, Mt. Kisco, N.Y. Phone 6-7769.

TELEPHONES WESTERN ELECTRIC 302 (251) with 5H Dials, completely reconditioned, new neoprene cords, rebuffed, new metropolitan plates, new finger wheels and other necessary parts. Ringer Frequency SL-16-30-42-54-66. Satisfaction guaranteed. $12.00 each. W. E. Quattlebaum, Jr., c/o Tri-County Telephone Co., Bonifay, Fla.

TWO NORTH SWITCHBOARDS IN SERVICE NOW. Available in July. Both have 60 Lines, 3 Trunks and Composit Circuits, 20 Code ringing. One has 5 Links, 4 Amp. Charger, 2 pay lines. Board installed new 1947. Other has 6 links, 6 Amp. Charger. Wired 4 pay lines. Equipped for 6. Installed new 1952. Send offer to: Panhandle Telephone Co., Inc., Dix, Nebr.

TELEPHONES AE TYPE 40, (DIAL) Ringer Frequency 30-42-54-66. Completely reconditioned new neoprene cords, finger wheels, metropolitan plates and rubber base. Cases and hand pieces have been rebuffed. Packed in heavy duty bags and sealed from dust. Inspectors tag on each. Price $7.00 each. W. E. Quattlebaum Jr., c/o Tri-County Telephone Co., Bonifay, Fla.

TERMINAL BLOCKS

LESS MAPLE FANNING STRIPS	WITH MAPLE FANNING STRIPS
Cook 2 x 20	Cook 2 x 26
Cook 3 x 20	Cook 5 x 20
Cook 4 x 20	Cook 6 x 20
Cook 2 x 26	A.E. #A20552-D 4 x 20
Cook 3 x 26	A.E. #A20552-F 6 x 20
Cook 4 x 26	(*) A.E. #66656 8 x 50
S. C. 5 x 20	(*) A.E. D-66676A 3 x 20
S. C. 6 x 20	

All Terminals cleaned—Excellent condition
(*) New—Excellent

BUCKEYE TELEPHONE & SUPPLY CO.

1250 KINNEAR ROAD COLUMBUS 21, OHIO

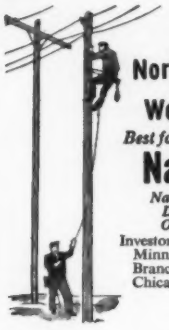
HUDSON 8-0655

FOR SALE

1—Lorain Products NEW Flotrol Battery Charger—Series #306, Model RA250B of 25 Ampere capacity.....$600.00

23 Cells of Gould #32008 Storage Battery—Unused $600.00

TELEPHONE REPAIR & SUPPLY CO.
1760 W. Lunt Ave. Chicago, Ill.



Northern white cedar
•
Western red cedar

Best for durability...poles from

National Pole

National Pole and Treating Division, Minnesota and Ontario Paper Company

Investors Building • Minneapolis 2, Minn. Telephone FEderal 8-8881. Branch Office: Prudential Bldg., Chicago • Plant: Minneapolis.

POLES

B. J. Carney & Co., 100 N. 7th St., Minneapolis, Minn.—Western red cedar poles Pentrex Butt Treated or Plain.

Cascade Pole Co., P.O. Box 743, Tacoma, Wash. — Creosoted Douglas Fir and Cedar Poles.

C. M. Christiansen Co.—Northern White Cedar Poles, Pentachlorophenol treated. Plant and Yards. Phelps, Wis.

Dierks Forests, Inc., Wood Preserving Division, 810 Whittington Ave., Hot Springs, Arkansas. Southern Pine select poles, all sizes and lengths, pressure-treated, creosote or penta. Also creosote-2% penta mixture. Prompt shipment.

Eppinger & Russell Co., 80—8th Avenue, New York 11, N. Y.—Creosoted Poles and Cross Arms. Plants: Jacksonville, Fla., Norfolk, Va., Eddington, Pa.

International Creosoting and Construction Co., Galveston, Texas.—Creosoted Southern Yellow Pine Poles. Plants Beaumont and Texarkana, Texas.

International Paper Co., Wood Preserving Division, Sales—926 Grand Avenue, Kansas City, Mo.—Pressure-treated Southern Pine and Douglas Fir Poles. Creosote and Penta preservatives.

Piedmont Wood Preserving Company —Creosoted and Creosote-Penta Treated Pine Poles. Plant, Augusta, Georgia. Yards, Virginia, West Virginia and Connecticut. Address inquiries to Box 1662, Spartanburg, S. C.

Texas Creosoting Company—512 Main Street, Orange, Texas—Creosoted Southern Yellow Pine and Douglas Fir Poles. Can also treat with "Penta."

FOR SALE

CORRECTION
60AP Selectors, complete with 162C Selector Set, new $35.00
60AP Selectors only new $25.00
—(sorry, no 162C separately)—
—our error—

Telegraph Carrier Terminals W.E. 6-12 channel

Composite Sets

Complete systems & parts

Power supplies—cabinets—racks

H Carrier & filters (C & H types) Speech-plus Duplex carrier

TG 30-31 Telegraph Repeaters $50.

CF-3A Telegraph Carrier Repeaters $100.

Relays—condensers—plugs—cords —keys—jacks & mountings etc.

priced to sell NOW

—Shipped on approval—

Telectric Co.
1218 VENICE BOULEVARD
LOS ANGELES 6, CALIFORNIA

FOR SALE

REPEATERS, VF (new)
Dry line—22 type
TP 14 (portable) 2-4 wire
115-240 VAC—12 VDC
12-18 DB gain (resp.)
—intermedite or end-ring by-passed—
mfg by Federal.....$150.

3-CIRCUIT W.E. (new)
OA-8/FC (X61821-k-1)
115-230 VAC
2 or 4 wire (24-30 DB gain)
7 ft. 19" cabinet (steel) with telegraph composite sets and balancing network, protectors, drainage coils, test jacks, etc....$300.
(note—requires VF ringer set)

VF RINGER
(1000—20 cycle) EE 101A
115-230 VAC (2 circuits) W.E.
New .....$100.
recond. ..... 65.
2 EE 101 in steel cabinet with 7.5 watt Subcycle
TA 38/FC (W.E.) new.....$200.

VF RINGER—115-230 VAC
single circuit
TA 3/FT Federal, new.....$35.

Manual (illustrated) included
—loaned for inspection—
for all above items

ATLANTIC
Creosoting Co., Inc., 17 Battery Pl., N. Y. C.
PINE POLES
Creosote Oil or Pentachlorophenol
Boston, Mass. Portsmouth, Va.
New York, N. Y. Philadelphia, Pa.
Savannah, Ga.

POLES
CREOSOTED SOUTHERN YELLOW PINE
LOW RESIDUE COAL TAR DISTILLATE
"Truck Delivery Our Specialty"
Baker Wood Division, D. B. Frampton & Company
P.O. BOX 355 MARION, OHIO

ARCHIE DAVIS, INC.
UNDERGROUND CONDUIT AND MANHOLE CONSTRUCTION
BURIED CABLE—CABLE PLOWING
POLE LINE CONSTRUCTION
522 Forest St., Jacksonville 2, Florida
Telephone: Elgin 3-7501

CABLE SPLICERS • LINEMEN
STATION INSTALLERS
STEADY WORK, GOOD PAY
MIDWEST LOCATION.
The Weikel Line Company, Inc.
FORT WAYNE, IND.

ORDER FROM L. E. S. AND PAY LESS
CABLE SPLICING TOOLS & SUPPLIES
PROMPT DELIVERY FROM STOCK
Send for Bargain Stock List No. CS.
LINE EQUIPMENT SALES
46 W. Harrison St., Chicago 5, Ill.

For PROPERTY CONTROL SYSTEMS
Numbered metal nameplates
with adhesive backs.
DECALS—any type or style
MACCO COMPANY
784 Crestridge Drive, N. E. Atlanta 6, Ga.

FOR ALL OF YOUR CENTRAL OFFICE AND PBX INSTALLATIONS, MODIFICATIONS, AND ENLARGEMENTS, IT'S THE
T. E. I.
TELEPHONE ELECTRONICS INSTALLATION CORP.
Hayes Bldg., 12 E. Tenth St., Erie, Pa.
CAN WE BE OF SERVICE TO YOU?

DAVIS
CONSTRUCTION COMPANY
UTILITY PLANT CONSTRUCTION
45 North Clark Street • Sullivan, Missouri

Index to ADVERTISERS

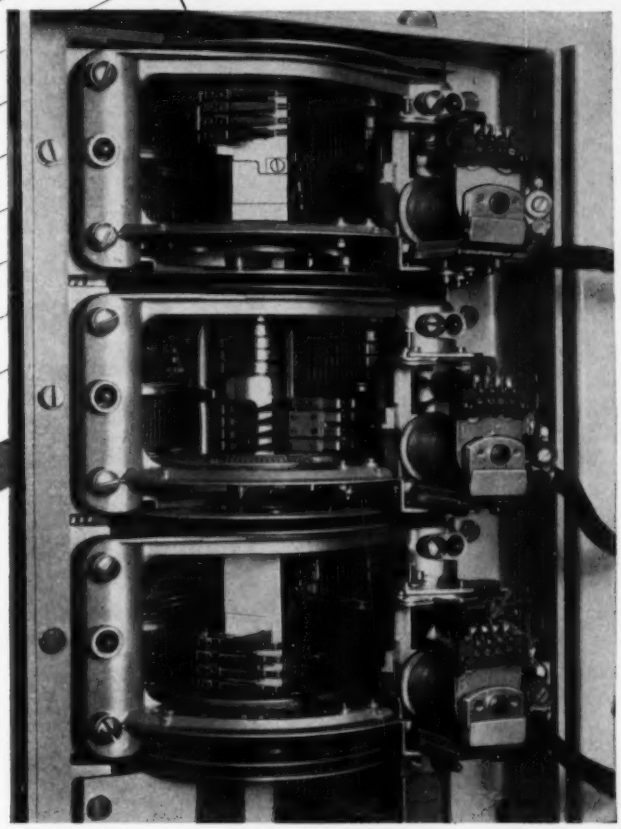
	Page
Acme Visible Records, Inc.	—
Airtronics International Corp.	—
Ajax Business Machines, Inc.	—
Allied Radio Corporation	—
Alphaduct Wire & Cable Co., The	—
Altec Lansing Corp.	—
Aluminum Company of America	—
Amchem Products, Inc.	53
American Chain & Cable Co., Inc. Page Steel & Wire Div.	—
Wright Hoist Div.	—
American Creosoting Corporation	—
American Electrical Heater Co.	—
American Steel & Wire Co.	—
American Telephone & Telegraph Co.	—
Anaconda Wire & Cable Co.	—
Ansonia Wire & Cable Co., The	—
Arps Corporation	—
Atlantic Creosoting Co., The	71
Automatic Electric Sales Corp.	14-15, 36-37, 42, 46, 47, 51, 62, 63, 67
Avnet Electronics Corp.	—
Baker Wood Division	71
Barber Advertising Specialties, Walt	—
Barber-Greene	—
Bartlett Tree Experts	—
Bell Telephone Laboratories, Inc.	—
Benner-Nawman, Inc.	55
Berry & Co., L. M.	16
Bethlehem Steel Co.	—
Biddle Co., James G.	—
Bishop Manufacturing Corp.	—
Blaw-Knox Company	—
British Insulated Callenders' Cables, Ltd.	12
Buchart Associates	—
Buckeye Telephone & Supply Co.	70
Burgess-Manning Company	65
Burroughs Corp.	—
C&D Batteries, Inc.	—
Cabaniss-Pogue Co.	68
Cable Construction Co.	68
Cable Spinning Equipment Co.	54
Calculagraph Company	—
Chance Co., A. B.	—
Chase Brass & Copper Co.	65
Cleveland Inst. of Radio Electronics	—
Clifton Appraisal Company	—
Collins Radio Co.	66
Colorado Fuel & Iron Co., The	—
Commercial Cord Company, Inc.	—
Communication Equipment & Engineering Co.	—
Cook Electric Company	—
Copperweld Steel Co.	—
Crane, Inc., Carl C.	68
Cushman Motor Works, Inc.	—
Davis Construction Co.	71
Davis Inc., Archie	71
Diamond Expansion Bolt Co.	—
Donnelley & Sons, R. R.	—
Dow Chemical Company, The	—
Duo-Safety Ladder Corp.	—
Electric Specialty Co.	—
Everstick Anchor Co.	68
Exide Industrial Division— The Electric Storage Battery Co.	—
Fairbanks, Morse & Co.	49
Fitchburg Engineering Corporation	—
Foley Construction Co., Robert E.	68
Gagne Enterprises, Inc.	—
General Cable Corporation	—
General Insulated Wire Works	—
General Machine Products Co., Inc.	—
General Telephone Directory Co.	—
Gladwin Plastics, Inc.	—
Goodrich Chemical Co., B. F., The	—
Gould-National Batteries, Inc.	—
Graybar Electric Co.	—
Haley & Co., R. G.	—
Harris McBurney Company	—
Henkels & McCoy	68
Highway Trailer Company	9
Hirsch Organization Inc., Gustav	—
Holan Corp.	29
Hopfeld Industrial Manufacturing Co.	—
Indiana Steel & Wire Co.	43
Irby Construction Co.	69
Irwin Auger Bit Co.	—
Jet Line Gun Company	—
Johns-Manville	—
Kander & Company, Allen	—
Kearney Co., Jas. J.	—
Kellogg Switchboard & Supply Co.	30-31, 48
Kennecott Wire & Cable Div.	65
Keystone Steel & Wire Co.	—
Killoren Company	—
Klein & Sons, Mathias	52
Kleinschmidt	—
Koiled Kords, Inc.	13
Koppers Co., Inc. Wood Preserving Div.	—
Lake Shore Electric Corp.	—
Leich Sales Corporation	6-7
Lindsay Telephone Supply Co.	50
Line Equipment Sales	71
Lorain Products Corp., The	5
Magnolia Chemical Company, Inc.	68
Malleable Iron Fittings Co.	—
McCabe Powers Auto Body Co.	—
McGrath Engineering, Inc.	68
Midwest Communications Service Co.	68
Mini-Fone	—
Morrison-Pelsue Co.	54
Mullen Construction Co.	—
Murphy Engineering Laboratories	—
Natco Corporation	—
National Pole & Treating Div.	71
National Standard Co.	—
National Telephone Supply Co.	Back Cover
Neubauer Manufacturing Co.	—
Neuses. Inc., K. P.	69
North Electric Company	10-11
Onan & Sons, D. W.	—
Orangeburg Manufacturing Co., Inc.	—
Owens-Illinois	—
Page & Hill, Inc.	—
Phelps Dodge Copper Products Corp.	—
Philco Corporation Gov't & Industrial Div.	39
Porcelain Products, Inc.	—
Porter, Inc., H. K.	—
Preformed Line Products Co.	57-58
Radio Frequency Laboratories, Inc.	—
Ramset Fastening System	—
Rawlplug Company, The	—
Raytheon Mfg. Company	—
Recordak Corp.	—
Reichhold Chemicals, Inc.	—
Reliable Electric Company	—
Remington Rand Div.	—
Republic Creosoting Co.	64
Rex Corporation, The	8
Rolatape, Inc.	—
Runzel Cord & Wire Co.	—
S & G Manufacturing Corp.	—
Schauer Mfg. Co.	—
Secode Corporation	—
Seymour Smith & Son	—
Sierra Electronics Corp.	—
Sloan, Cook & Lowe Co.	68
Stainless, Inc.	—
Stampings, Inc.	56
Stewart Bros.	—
Studebaker-Packard Corporation	—
Stromberg-Carlson Co.	2-3, 44-45
Superior Cable Corporation	—
Suttle Equipment Corporation	60, 69
Taylor-Colquitt Co., The	—
Telectric Co.	71
T.E.I. Corp.	71
Tel-E-Lect Products, Inc.	—
Tele-Muff Co.	—
Telephone Construction, Inc.	—
Telephone Training Institute	—
Teletype Corporation	—
Tele-Wire Supply Co., Inc.	69
Telkor, Inc.	—
Templeton, Kenly & Co.	—
Thornhill Publishing Co.	60
Transandean Associates, Inc.	38
Tudor & Yager, Inc.	68
Tung-Sol Electric, Inc.	—
United Electric Controls Co.	—
U. S. Cable Constructors, Inc.	69
United States Independent Telephone Association	59
U. S. Industrial Chemicals Co.	33
United States Instrument Corp.	73
United States Motors Corp.	—
United States Steel Corp. American Steel & Wire Co.	—
Creosote Division	—
Universal Controls Corp.	35
Utica Drop Forge & Steel Div.	—
Utility Body Co.	—
Utility Service Co., Inc.	—
Utility Tool & Body Co.	69
Vermeer Mfg. Co.	—
Volkswagen	—
Warren Mfg. Co., Inc., The	—
Weikel Line Company	71
Western Electric Co.	40-41
Whitney-Blake Co.	—
Williams Inspection Co., Inc., W. A.	68
Wiremold Co., The	—
Wyoming Valley Equipment Div.	—
York-Hoover Corporation	—

WESTERN REPRESENTATIVE:
McDonald-Thompson, 625 Market St., San Francisco, Cal.; 3727 W. Sixth St., Los Angeles; 620 Sherman St., Denver, Colo.; National Bldg., Seattle, Wash.; 3217 Montrose Blvd., Houston, Tex.; 2010 S. Utica, Tulsa, Okla.; 404 Times Bldg., Portland 4, Oregon.

HEADING THE LIST

for Advance Performance

Many things will govern your choice of new equipment for your central office. If you were to list them, most likely performance would occupy the number one position. You want the best you can get for today's job and tomorrow's profit.



USI's Motorswitch System offers the most advanced design available in contemporary switching equipment with built-in provisions awaiting your DDD conversion. The Motorswitches themselves are constructed to be 100% interchangeable and can serve as linefinders, selectors or connectors. It all adds up to the ultimate in modern switching and brings you "Tomorrow's Telephony Today.'

USI CORP.®

UNITED STATES INSTRUMENT CORPORATION

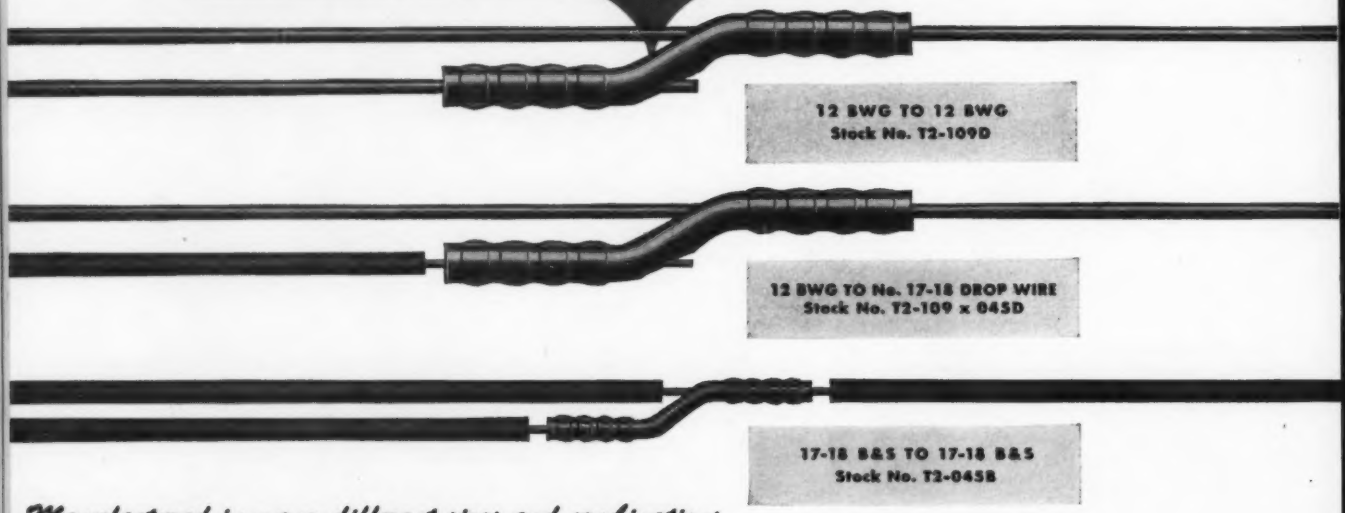
CHARLOTTESVILLE, VIRGINIA

Nicotap

THE FAST, DEPENDABLE Nicopress WAY OF MAKING LINE AND DROP WIRE TAPS

THE NICO-TAP IS SPLIT

THERE IS NO NEED OF CUTTING THE LINE TO MAKE THE CONNECTION—JUST SLIP THE SLEEVE OVER THE LINE WIRE AND COMPRESS



12 BWG TO 12 BWG
Stock No. T2-109D

12 BWG TO No. 17-18 DROP WIRE
Stock No. T2-109 x 045D

17-18 B&S TO 17-18 B&S
Stock No. T2-045B

Manufactured in many different sizes and combinations

The National Telephone Supply Company

5100 SUPERIOR AVENUE • CLEVELAND 3, OHIO

Canadian Mfr.—N. SLATER CO., LTD., HAMILTON, ONT., CANADA

Export Distributor—INTERNATIONAL STANDARD ELECTRIC CORP., NEW YORK, N. Y.

Nicopress is the Registered Trade Mark of The National Telephone Supply Company

THE NATIONAL TELEPHONE SUPPLY COMPANY

ASK YOUR JOBBER